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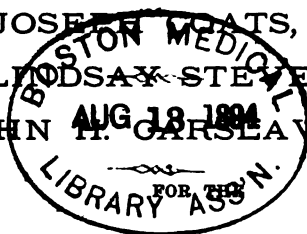
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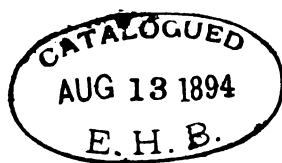


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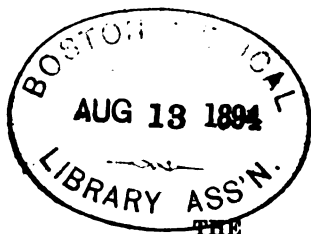
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ORIGINAL ARTICLES.

THE PREVENTION OF PREVENTABLE DISEASE.*

BY SIR SPENCER WELLS, BART., F.R.C.S.,
Surgeon to the Queen's Household.

MR. PRESIDENT AND GENTLEMEN,—I need not say that an invitation to address a meeting of professional brethren in the commercial capital of Scotland—"in population the second city in Great Britain"—should be gratefully acknowledged by any one as a great honour. And when I learned that, although the Glasgow Obstetrical and Gynæcological Society was founded only eight years ago, it now numbers about 130 members (among whom are not only all the Glasgow gynæcologists, but also a large and constantly increasing number of general practitioners), I felt not only extremely grateful for the opportunity of addressing so many friends and colleagues, but also embarrassed by the difficulty of selecting some subject in which the members generally might be interested and, possibly, influenced for good. I first thought that some historical account of the more recent developments of abdominal surgery which followed the rise and progress of ovariectomy might be acceptable. But the fact that I had so recently devoted the Bradshaw lecture

* Address to the Glasgow Obstetrical and Gynæcological Society, delivered 24th May, 1893.

at the College of Surgeons to this subject, induced me to rather offer some published copies of this lecture for your acceptance, and ask you to read at your leisure what I said then and believe now, than to repeat here what I have already published. Copies are here on the table at the service of any one to whom they may be of use, and I will at once pass on to another subject which is not only interesting to operating surgeons, but to obstetricians and gynæcologists, who may be more usefully occupied in the consideration of some questions of preventive and curative medicine than of those surgical operations which are often performed by gynæcologists.

After carefully considering how I could most usefully occupy the time so kindly placed at my disposal by your President, and possibly exert some influence for good upon those who do me the honour of attending here to-night, and upon other members of this Society, I remembered that, in the presidential address at the opening of the International Congress of Hygiene in London, the Prince of Wales asked, "Where could one find a family which has not, in some of its members, suffered from typhoid fever, or diphtheria, or other of those illnesses which are especially called 'preventable diseases?' where is there a family in which it might not be asked, 'If preventable, why not prevented?'" And reflecting that this Society is especially devoted to the study and practice of obstetrics and gynæcology, it occurred to me that of all the preventable diseases which may be, and ought to be, prevented, the disease commonly known as puerperal fever is of so much importance to you all, that I could not go very far wrong if I asked you to ask yourselves the question whether puerperal fever is a preventable disease or not, and if preventable, how it may be prevented.

The first question opens up the old controversy whether there is any such disease as a specific puerperal fever—a fever following upon childbirth which may differ from scarlet fever, or erysipelas, or measles, or diphtheria, attacking a woman in the peculiarly susceptible condition which accompanies or follows pregnancy, labour, and delivery—or whether puerperal fever may always be due to blood poisoning from the absorption of decomposing blood or other exudation imperfectly cleared away from the uterine cavity or the vagina, the absorption assisted by such mechanical injuries as abrasions or lacerations occurring during delivery—a fever which might be more correctly termed puerperal pyæmia or septicæmia—not due to the inoculation of any such definite

morbid poison as the specific germs of any communicable disease. Or, to put the question in another way, if we are dealing with a pregnant and parturient woman who has been protected from, or not exposed to, the poison of erysipelas, scarlet fever, small-pox, or any such communicable fever, she may still have fallen a victim to a distinct morbid poison—to a microbe which may be recognised and cultivated, and inoculated, and which causes a definite train of symptoms characteristic of puerperal fever, and transmissible to other parturient women.

If we turn to the official reports of the Registrar-General in England, Scotland, or Ireland in hope of finding some assistance in clearing up any such doubt, we are still left in a state of uncertainty. For instance, in the last published annual report of the Registrar for England—that for 1891—we read, “The deaths attributed to puerperal fever were 1,973, and if to these be added 2,814 other deaths from the various accidents of childbirth, we have a total of 4,787 deaths, giving a mortality of 5·24 to 1,000 registered births.”

But we are left in doubt as to how far the deaths registered as from erysipelas, pyæmia, septicæmia, and puerperal fever have been accurately certified; and in what proportion others registered as premature births, puerperal mania, puerperal convulsions, placenta prævia, flooding, phlegmasia dolens, and other accidents of childbirth may or may not have been due to, or complicated by, puerperal fever. In the valuable table where the proportion of deaths to 1,000 births in the different registration counties of England is compared, “puerperal fever and accidents of childbirth” are grouped together. “Diseases of parturition” is another general heading which may include a variable proportion of cases of puerperal fever. The lesson from this is, that the registrars are dependent on the practitioners who give the certificates; and while more accurate certificates are undoubtedly required by all who desire to improve the national health and ascertain the true causes of disease, it should not be forgotten that the gentlemen who at present perform an important duty to the State have done so for many years past without acknowledgment or reward. This has been made known to the Select Committee of the House of Commons on Death Certification, which is still sitting, which your able and influential member, Dr. Cameron, succeeded in obtaining from the Government, and we may hope that when it becomes known how far accurate registration of the cause of death may lead towards a knowledge of the best and surest modes of preventing disease—

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of shortening sickness and prolonging life—such important service to the nation will be recognised and rewarded, either by the state or by some such local authority as a municipality or a County Council.

But however desirous anyone of us may be to fill up a death certificate accurately, it may be difficult in many cases to be sure whether puerperal fever, pyæmia, septicæmia, scarlatina, or some accident of childbirth would be the more correct return. Here, again, there crops up the old difficulty on which so many thousands of pages have been published. It is nearly twenty years since I raised a discussion at the Obstetrical Society of London "On the Relation of Puerperal Fever to the Infective Diseases and Pyæmia." A full report of my paper, and of the discussion to which it led, and was continued on four nights, may be found in the *Obstetrical Transactions for 1875*.

Puerperal fever, if we follow the nomenclature of diseases drawn up by our College of Physicians, is "a continued fever, communicable by contagion, occurring in connection with childbirth, and often associated with extensive local lesions, especially of the uterine system." Dr. Fordyce Barker, who crossed the Atlantic purposely to join in the discussion, accepted this definition as "absolutely correct," although its author, Dr. Arthur Farre, thought it might be modified by saying that the fever was "*often* communicable by contagion," implying that sometimes it was not. But however much we may discuss these problems, the main interest with us this afternoon is the question whether this fever is preventable, and how it may be prevented. And here we possess perhaps stronger and more extended evidence than can be procured respecting any other communicable fever. Dr. Duka's memoir of Semmelweis, and the history of his wonderful success in the prevention of childbed fever in Vienna, is one of the most effective chapters in medical history. In 1841 a terrible outbreak of childbed fever in the maternity department of the General Hospital of Vienna broke out and lasted for twenty months. Of more than 5,000 parturient women more than 800 died—a terrible mortality of more than 16 per cent. Then came a change. From 1841 to 1846, students and midwives worked in separate departments, and the fatality in the students' wards was 9, in the midwives' only 3 per cent. When Semmelweis was striving to discover the cause of this remarkable state of things, he became convinced that the death of a friend, who fell a victim to phlebitis and secondary abscesses after an operation wound, was exactly what he had so often noticed in fatal puerperal

cases, and he reasoned that the cause in both cases was "poisoning by decomposed particles of a dead body." The dissecting students had been satisfied with washing their hands in soap and water, which was clearly insufficient to remove all particles of poisonous matter from the fingers and nails. Accordingly in May, 1847, Semmelweis ordered every student, before examining a pregnant woman, to thoroughly wash his hands with chlorinated lime water. At that time the percentage of mortality stood at 12 per cent. In six months it was reduced to 3. In the second year of the experiment the death-rate fell to 1.27 per cent. The practical outcome of the great work of Semmelweis' life is that puerperal fever can be prevented by "removal of maternity wards from insanitary surroundings, great care and gentleness in using instruments, scrupulous attention to general cleanliness, and frequent use of antiseptics." These are the words of Dr. Duka, to whom I am indebted for a few copies of his valuable memoir, which are here on the table offered for your acceptance. I feel sure that any one who reads the memoir will agree that the memory of this man should be honoured, and that the international monument which it is proposed to erect in his native city, Buda Pesth, deserves the support of every philanthropist.

It would be easy to quote many other published statements to prove how puerperal fever has been almost abolished, both in hospital and private practice, by aseptic and antiseptic precautions and treatment. And whatever share some may believe that scarlet fever, or erysipelas, or any other poison may have as its cause, the main argument is that it is preventable and ought to be prevented. Only last week I received from Dr. Vincent, of Lyons, some important information as to the mortality in the maternity of that city before and after the introduction of the antiseptics there. I am unwilling to trouble you with many figures, but I may briefly say that in the eight years before 1878, the deaths varied from 79, 56, 50, 42 to the lowest 21 per 1,000. In the following six years to 1883, when carbolic acid was the antiseptic used, the mortality fell from 16 down to 9 per 1,000, and after 1884, when bichloride of mercury was substituted for carbolic acid, the mortality has gradually fallen, until it is now less than 1 in 1,000, in 1887 only one death having occurred among 1,231 births. Using the perchloride solution of the strength only 1 to 2 to 4,000, no harm has, in any case, been traced to the mercury. On going over your own Maternity this morning with Dr. Murdoch Cameron, I was delighted to find that puerperal fever has

been so rare during the past few years, that it is almost disregarded. In former years, before the antiseptic age, the mortality was so great that the Hospital had to be closed several times.

Next, the question arises whether there may not be a safer, better, and less objectionable antiseptic in midwifery practice than either carbolic acid or perchloride of mercury. M. Pasteur himself has assisted in this enquiry. His observations of pus taken from the peritoneal cavity and of blood from the veins of women during the progress of fatal puerperal fever, lead him to the conclusion that a tepid saturated solution of boracic acid would *prevent* an attack of puerperal fever in any woman who had not some abscess before labour. He would keep such a solution near the bed during labour, and use compresses, sterilised by heat and wetted with this solution, frequently applied. It is reported very confidently that in several French maternities, where this antiseptic has been properly used, puerperal fever has almost disappeared.

But whether some cling to carbolic acid, others to perchloride of mercury, some to sulphurous acid, some to permanganate of potash—holding to that which they believe to be and have found to be good—whether others follow Pasteur and prefer boracic acid, or are perhaps impressed by still more recent observations, and adopt the oldest and cheapest and most universally obtainable of all antiseptics, common salt, in weak solution, all must agree that the antiseptic should be efficiently used; and as knowledge increases we shall probably learn to vary the antiseptic with the microbe we have to destroy. Many years ago I asked M. Pasteur which he thought would be the best general disinfectant. He replied that this must depend upon the disease, and gave me a practical hint which I have many times found of great value at the bedside. He spoke of a very common form of catarrh of the bladder with viscid mucus and ammoniacal urine, due to the action of a well-defined vibrio which resists washing out of the bladder with water which has been simply sterilised by boiling, or charged with any acid or germicide as strongly as can be safely used, but which is in a very few hours destroyed by a saturated solution of boracic acid. I have proved the truth of this to my great satisfaction and rapid relief of the patient in many cases. Here permit me to read what my friend Dr. Ruffer has published on this very important practical matter. He says—"To limit the spread of infectious disease it is necessary that we should have full and accurate knowledge of the disinfecting power

of every disinfecting agent on every micro-organism. How, for instance, are we to stop the spread of phthisis if we do not know what strength of disinfecting fluid will kill the specific bacillus? How are we to arrest the spread of typhoid if we do not know how much sublimate or other disinfecting agent will kill the bacillus of typhoid? It is a far more complicated business than most people think, or have any idea of. Like most people, I have been unfortunate enough to see many of my friends die of phthisis, which, in some cases, was contracted from their nearest and dearest relations, and I have often been struck with the astonishing ignorance, not only of the public, but of the medical profession, as to what constitutes a disinfectant. I have seen cases of phthisis in which the patient was never taught once from beginning to end that it was his duty to expectorate into antiseptics only. I have seen other cases in which the antiseptics, such as sanitas or weak Condry's fluid, were worse than useless, for they gave the friends and the patient an idea of security where none exists. Similarly, in typhoid, I have seen physicians recommend the mixing of the typhoid dejecta, with such powerless agents as Condry's fluid or utterly inefficient doses of sublimate. In other cases I have seen them mix them with 5 per cent carbolic acid, forgetting (or not knowing rather) that carbolic acid has been found to be almost powerless on the typhoid bacillus, so that it is used in the laboratory for the isolation of that bacillus from other bacteria which may be present in the fluid. We must remember that every disinfectant will not act in the same dose on every organism—that arsenic is a poison, for instance, and yet some moulds will live in a solution of arsenic, and although this fact at first appears to make the task a more difficult and complicated one, yet it opens up the hope that a substance may be found for each micro-organism, which may prove fatal in small doses to that microbe, without producing any symptoms in the patient."

Surely there is good and sufficient reason to hope that by aseptic and antiseptic treatment carefully carried out under intelligent superintendence, puerperal fever may almost always be prevented, and that when a rare exceptional case appears it may be traced to some accidental imperfection in the use of the preventive safeguard. And we may further confidently trust that, when the teachings of science are generally known and obeyed, puerperal fever will be abolished, and the deaths of some two or three thousand women in every year in England and Wales, or say of about 1 in every 150 in the whole

kingdom, who now die within a month after childbirth, will no longer be regarded as unavoidable, or deplored as providential, but rather used as stimulants to stronger exertions and to more firm determination of every one of us to prevent preventable disease to the very utmost of our power.

It would be easy to multiply proofs by the results of experience of lying-in-hospitals here, at home, and in America, supporting that of Germany and France, and encouraging us to work on hopefully; but time is short, and I must pass on to other, perhaps less familiar, investigations, and more recent researches. We have passed the time when bacteriology was in its infancy. It may not yet have reached beyond the stage of early childhood or adolescence; but it has advanced far enough to add a great deal to the knowledge of 1875. The term "septic poison" was used by several speakers in the discussion at the Obstetrical Society, but what they meant is not clear. Certainly not any such mineral or chemical poison as arsenic or strychnia; probably not any such poisonous gas as sulphuretted or phosphuretted hydrogen; perhaps not anything absorbed from dead or decomposing matter. It is only exceptionally that a living poison seems to have been considered—a germ or seed which, sown on a fruitful soil, and under favouring conditions of moisture and temperature, may "bear fruit a hundredfold." At that time professional opinion had not been much influenced by the lessons which the physiologist had learned by inoculations and the cultivation of microbes. The destruction of poisonous germs, or their preservation and retention of latent life for many years; their occasional reproduction and multiplication with amazing rapidity, each producing its kind—small-pox, cholera, typhoid, diphtheria, tubercle—reproducing itself as certainly as wheat, barley, or oats, the fig, or the thistle. The radiation of Pasteur's light had not penetrated very far or very deeply. It was not for some years afterwards that various kinds of micro-organisms were recognised, and even now the true pathogenic importance of some is arguable, and quite open to difference of opinion. Take, for instance, the streptococcus pyogenes. Some believe that this microbe and the streptococcus erysipelatosus are identical, are precisely the same organism—one not distinguishable from the other. Some careful observers have arrived at the conclusion that although very little is really known on the subject, yet that in all cases of puerperal infective disease the streptococcus pyogenes is always present, while no micro-

organisms are to be found in the lochia of perfectly healthy women after confinement, nor any pyogenic organisms in the vagina of women who have never used injections nor have been submitted to digital examinations; whereas, in all cases of perimetritis and puerperal peritonitis the streptococcus pyogenes may be found, and sometimes staphylococci also.

It has also been shown that while there is a stage or period of disease when the streptococcus is found alone, afterwards staphylococci are present as a secondary infection. The extreme danger of such purulent infection in childbirth has been shown by the facts that the death of several women has been distinctly traced to midwives, who have inoculated the microbes of purulent ophthalmia with a fatal result to one woman, and who have carried the poison and fever to a succession of other parturient women, who afterwards died of puerperal peritonitis, both streptococci and staphylococci having been found in the pus.

The study of the prevention of preventable diseases has been wonderfully assisted by the advance of bacteriology during the last twenty years. The evolution of physiological and pathological histology following microscopical observations of the tissues, and cells, and morbid growths, was the foundation of modern pathological anatomy. But it was not until Davaine, Chauveau, and Toussaint had led the way to the discoveries and teaching of Pasteur, that many of the diseases of man and the lower animals have become better understood, and their causes explained by the action of microbes or parasites (poisons not arising *within* our bodies, but introduced from without, parasites living in the air, in water, in the earth), which, recognised, cultivated outside the body, watched in the cellular changes each causes after introduction, in the poisons (so-called toxines) which they secrete before or engender after their death, and the vital reactions to which they give rise do not simply satisfy scientific curiosity, but at once lead to hygienic precautions, to preventive or attenuated vaccinations, and antiseptic treatment. Clinical observations have lately shown that, in man at least, the large majority, if not all, cases of inflammation and suppuration are due to the action of some micro-organism. Moreover, it would appear that one micro-organism will certainly produce suppuration, and that wherever there is suppuration after confinement, there is always the streptococcus pyogenes. Abscesses may be caused by the typhoid bacillus, by the micro-bacillus of pneumonia, and the bacillus

coli-communis, just as much as by the micro-organisms which are more commonly recognised as the causative agents of suppuration—viz., the staphylococcus albus or aureus, or the streptococcus pyogenes.

Now, with regard to the latter class of micro-organisms, we know that they are always with us, that they may be found on the skin, in the mouth, the intestine. Nevertheless, they do not appear to thrive on any mucous membranes except on the intestinal. Experiments have shown that the respiratory passages, the trachea even, are practically free from bacteria. Similarly the uterine mucous membrane, and even the vagina, of healthy women appears to be free from micro-organisms, and this leads us to the first practical point of interest—namely, that infection of the uterus nearly always comes from without.

The finger of the midwife or the accoucheur must often be the contaminating agent, and we must remember that the non-aseptised finger is almost bound to carry in the germs of infection. Puerperal peritonitis, and the various inflammations which start from the uterus after labour, are nearly always due to the presence of the streptococcus pyogenes, associated or not with other micro-organisms, such as the staphylococcus albus or aureus. The introduction of the midwife's finger may act in two ways—the finger may either introduce the streptococcus pyogenes, or it may introduce other micro-organisms which may favour the development of this streptococcus.

A few words of explanation are here necessary. Experimental observers have lately shown that a comparatively harmless microbe may be rendered exceedingly virulent if introduced into the system with another harmless microbe. Similarly a small quantity of a pathogenic bacillus (such as the bacillus of tetanus) will produce no effect unless it be introduced with some other microbe. A few examples will suffice. The *bacillus Chauvoei* is harmless to rabbits, but if this bacillus be injected with the micrococcus prodigiosus (which is in itself harmless) the rabbit invariably succumbs to the action of the first-named bacillus. A small quantity of the bacillus of tetanus produces no effect on a guinea-pig; but, if a small quantity of another harmless micro-organism, such as the bacillus proteus, be injected at the same time, the animal dies of tetanus. Moreover, it is not even necessary to inject the harmless microbe itself, for a small dose of its poisons will produce the same effect—it will give the more virulent microbe a chance of starting.

Applying this knowledge gained in the laboratory to the case of labour, we see that the introduction of micro-organisms, harmless themselves, is a danger. Even if the streptococcus pyogenes has not already invaded the uterus, the presence of another micro-organism will favour its development, should it find its way in at some future time. Or should the streptococcus pyogenes be already present in doses not sufficient to produce any symptoms, the introduction of the other micro-organisms will enable it to make a start. In order that the streptococcus should kill the patient, it is not necessary that it should leave the cavity of the uterus, and infect the whole body. The experiments of Vaillard and others have shown that some micro-organisms produce poisons of so deadly a nature, that an infinitesimal quantity of them will prove fatal even when the micro-organism is still localised in one spot and has not invaded the body. These poisons are chiefly formed in albuminous fluids, and one may well imagine what a quantity of poisons the streptococcus pyogenes and other micro-organisms will produce when thriving in a warm chamber like the uterus, and being cultivated on rich albuminous food, such as the lochia of a parturient woman. Even should the disease be localised at first, the absorption of these poisons will favour the dissemination of the micro-organism; for experiments have shown that micro-organisms spread with wonderful rapidity throughout the body if a small quantity of their poisons be injected at the same time. The bacillus of tetanus, for instance, if completely freed from poison, is quite harmless, even when injected in large doses; but if a small quantity of its own poison be added, it at once begins to thrive, and kills the animal.

It must be remembered that the poison secreted even by harmless micro-organisms is dangerous. In the human body these poisons are being always secreted in the intestinal canal, from whence they may be absorbed or neutralised and excreted. Hence the necessity of carefully attending to the state of the patient's bowels, for the increased absorption of bacterial poisons from the intestine must favour infection as surely as if such poisons were introduced under the skin.

All this has led to the rise of a new school of hygiene, and to laboratories consecrated to bacteriology. In London, the Society for the Advancement of Medicine by Research, supported by all the combined authority of our colleges and universities, has done good work by its publications and distribution of valuable tracts. But it has done little more than assist in removing some of the impediments thrown by ignorant

obstruction in the way of experimental research. Time, and energy, and money which might have been expended in assisting original observers, have been more or less wasted in clearing away opposition to advances. The Institute of Preventive Medicine is entering upon a more encouraging course, supported by a share of the Berridge bequest, and with a prospect of further help from public bodies. An account of this Institute and its aims, by Dr. Ruffer, is here on the table, and I am sure will interest those who will read it. The College of State Medicine, which has quite recently united with the Institute, will add greatly to its strength and power of doing good. And if only the three institutions could be formed into one powerful association—united as they *are* in a common object, as they *would be* by concentration of energy and individual support—we should possess a grand national home for experimental research, and for the advancement of scientific medicine, preventive and curative, as would be certain so to add to our knowledge of the causes of preventable diseases, and the means of preventing and curing them, as to deserve the gratitude of mankind. Just now such a consummation seems to be within our reach. By gaining knowledge we gain power—power for good, the power to prevent preventable disease, the power to advance the science and art which it is our vocation to study and practise for the common good—the common health of the commonwealth.

If we pass from general principles to practical details in our study of the way how to prevent preventable disease, the question of asepsis or antisepsis, alone or combined, at once arises, and we are met with the conviction that apart from the toxic action of some antiseptics, there is another reason which makes asepsis preferable to antisepsis. The memorable work of Metchnikoff has shown the importance of leucocytes in the healing of wounds and the prevention of infection. He has shown that the leucocytes and other allied cells are phagocytes, and that they destroy micro-organisms, preventing them from entering the body.

Now, Dr. Ruffer, working in the conjoint laboratories of the two London colleges, has shown that all antiseptics, if introduced under the skin, repel leucocytes. Thus, if a small piece of sterilised sponge be introduced under a guinea-pig's skin, it will be filled with leucocytes in a few hours; but if it be previously soaked in 1 in 20 carbolic acid solution, in turpentine, or in 1 in 1,000 sublimate, not a single leucocyte approaches it even after a lapse of some hours. He has also shown that if a bacillus which is in itself harmless to a rabbit, such as the

bacillus Chauvoei, be introduced together with a drop of lactic acid, the lactic acid prevents the approach of the phagocytes, the bacilli get a fair start, and the animal invariably dies of the disease.

I shall presently recur to the antiseptic question, but wish first to say a few words as to whether cancer may be added to the list of preventable diseases. Perhaps none of the questions which now interest a large number of pathologists is exciting more attention and discussion than that of the origin and prevention of cancer. At the present moment it is not too much to say that the subject is one of the most obscure in the whole domain of pathology. It is true that the anatomical lesions of cancer have been well studied, but as to the real causes of it very little is known. To say that a cancer is due to a chronic irritation, or to some foetal structure which suddenly springs into activity, is not an explanation; for the lesions of chronic irritation disappear after the cause is removed. A pipe-smoker who gets cancer of the tongue is not cured when he gives up smoking. A foetal structure, like a dermoid cyst, may by its growth compress the neighbouring tissues, but it gives rise to no secondary deposits, unless a new element, the malignant or cancerous element, be added. What, then, is that something more which turns a chronic lesion into an active malignant growth? When pathologists first began to study bacterial life it was supposed that cancer might be due to bacteria, until the experiments of Ballance and Shattock showed that cancerous growths were free from bacterial life. Was it, then, due to some higher organisms, such as protozoa? The subject has been and is even now the subject of controversial writing, but at any rate much light has been thrown on the subject by the observations of Sudakewitch in Russia, and Ruffer and Walker in England, observations which have been confirmed by so eminent a zoologist as Metchnikoff. These observers find in all cancers parasitic bodies, which, in their opinion, belong to the protozoa, and which inhabit the epithelial cells forming the tumour. More lately Ruffer and Plimmer have described the modes of reproduction of the parasites, which multiply by fission into two, four, eight or more young parasites. The latter observers, however, have committed themselves to no opinion as to the causation of cancer by these protozoa; for, although their investigations open a new field for research, the final answer to this question can only be gained through experimentation on animals.

Indeed, the question is a particularly difficult one. The contagion of cancer has been suggested; it has never been

proved, and the balance of evidence is against it. On the other hand, there are many facts showing that the inhabitants of certain districts, of certain houses even, are greatly afflicted with the disease. If that be so, then one ought to consider cancer as a kind of endemic disease resembling malaria; with this difference, however, that even after he has left the infected district the cancerous patient never gets well. But by studying the life history of this parasite, both inside and outside the body, together with inoculation on animals and carefully prepared statistical records, may we not hope that means will soon be found to arrest the spread of this horrible disease? May we not hope, further, that if it be shown to be a preventable disease, means may be found for its prevention? And is there not some ground for the suggestion that one of the early steps in the enquiry will be that notification of cases of cancer should be made compulsory, as if this disease were one connected with the functions of medical officers of health under the Notification of Infectious Diseases Act. Time does not permit me to say much as to the operation of this Act, and occasional opposition of the public, but it is certain that when well worked in any district the gain to the inhabitants is beyond doubt, and I fully agree with the opinion of Dr. Seaton, published in the *Times* last week, that there are so many important questions arising out of the working of the Notification Act, and so many special qualifications now required of the medical officers of health, that it will become necessary, "in order that in the future the supply shall equal the demand, to materially improve the *status* of medical officers of health in point of salary, which in towns should be on the same basis as those of the town clerk and other important functionaries."

Assuming that if preventable diseases are to be prevented, early notification of cases as they occur must be insisted on; and when they end fatally the cause of death must be always accurately certified, another important question arises—How should we dispose of the dead body? It is certain that the body contains innumerable microbes which are the seeds or germs of the disease which has caused death. Some of these disease-germs, perhaps all of them in some bodies, may be destroyed as putrefaction goes on. But it can be proved, beyond all contradiction or doubt, that in many cases the microbes, or some of them, are not destroyed, but are preserved in the earth for many years, retaining their destructive powers and leading to fresh outbreaks of infective or preventable disease either by polluting water supplies, or by

earth worms bringing the microbes up to the surface of the ground, or by more direct action on man or animals after the disinterment of the dead bodies. I hesitate before offering you another pamphlet, but to save your time now, I have some copies of an article published in an American Review last February—*The Forum*—which has been reprinted and entitled "Cremation and Cholera." I might have called it "Cholera a preventable disease and how to prevent it." Perhaps some of you may read what I wrote, so I will now only refer to the argument that the germ of cholera is "a living poison which has the power of multiplying itself with amazing rapidity, a *bacillus* which, having found its way into water, either stagnant or running as a stream or river, spreads, under varying degrees of temperature, very much like the countless myriads of minute beings which make the sea phosphorescent with their gleams for many miles.

"The rapid increase of animal poison is incalculable. An atom of small-pox matter inoculated as fluid, or borne by the wind when dry, multiplies itself many thousand fold in the person so poisoned. A minute speck of the mucous discharge from an animal affected by cattle plague, if put into the blood of a healthy ox, increases so fast that in a few hours the whole of the blood of the animal, weighing many pounds, is so poisoned that every drop of the blood contains enough poison to convey the disease to another animal within forty-eight hours."

Any of you who will favour me by a glance at the article written for the information, not so much for our profession as of the intellectual classes in America, may see that I have attempted to make generally known the doctrine that as the germs of preventable diseases may be preserved for many years in the earth, the present custom of disposing of the dead bodies of those killed by these diseases is a source of great danger to the living. You may read an extract from your member—Dr. Cameron's—article entitled "The Modern Cremation Movement," in the *Scottish Review* of July, 1887. I will not detain you by reading the whole of the extract, but the conclusion of Dr. Freire, the accuracy of whose statements Dr. Cameron has carefully examined, is so much to the point that I cannot omit it. Dr. Friere says—"The practice of cremating the bodies would be the surest means of extinguishing the epidemics which every year ravage, with greater or less intensity, our most flourishing centres of population. If each corpse," he adds, "is the bearer of millions of millions of organisms that are specifics of ill, imagine what a cemetery

must be in which new foci are forming around each body. Imagination is incapable of conceiving the literally infinite number of microbes that multiply in these nests. In the silence of death these worlds of organisms, invisible to the unassisted eye, are labouring incessantly and unperceived to fill more graves with more bodies destined for their food, and for the fatal perpetuation of their species."

I have been very glad to learn since my arrival here that before very long the progress of the modern cremation movement will be assisted by the example of Glasgow. Your Society has ample funds for *beginning* the new building in an admirable site already obtained, and there can be no doubt that its *completion* will not be delayed by the indifference of your wealthy citizens. Glasgow, by its water supply, excites the envy and admiration of London, and of nearly all our largest English cities. The sanitary powers so ably directed by your Lord Provost and Council, and the practical work of your indefatigable officer of health, Dr. Russell, have already proved of great advantage to all classes of your immense population. A visitor may perhaps wish that the abatement of the smoke nuisance may be more rapid and complete—and congratulate you on the daily destruction of much of the refuse of the city by fire—but I trust that not only the members of this Society, but the members of the profession generally in Glasgow, will impress upon your municipal authorities the growing belief that so long as the custom of burial of the dead bodies of those who die of preventable diseases is continued, the death-rate will remain far too high, and it will be impossible to prevent preventable diseases.

In concluding this very imperfect sketch of a subject of incalculable interest, not only to this nation, but to all mankind, permit me to add that I have been delighted to watch the progress made by the graduates of your University, and the practitioners qualified by your Faculty and Colleges, not only in the practice of the art, but in the study of the science of medicine in its widest sense—both curative and preventive; and if some of us of the present generation, looking upon ourselves as practical men, are disposed to smile at some of the refinements of new methods of research—perhaps to doubt their real value to the physicians and surgeons of the future, and to humanity—permit me to read to you what the late Prime Minister (Lord Salisbury) said lately at Oxford, when advocating a closer cultivation of the science of medicine in that ancient university. He said—"Now, partly under the pressure of human necessity, there

is another feature of this infinitely small—the bacilli—which is attracting more and more the attention of the scientific intellect of Europe. It is always dangerous to prophesy, but I do not think any one who has watched the course of science will doubt that, for a generation to come, the investigations of these creatures, which have been revealed to us by new methods of research, and by singularly patient labour, and upon which the lives of millions of human beings depend, will figure larger in the scientific field than any other object of study, and these are the special domain and privilege of medicine." What Lord Salisbury said this year may well be considered together with what Lord Beaconsfield said in 1872—twenty years ago. These are his words:—"In my mind, the great social question which should engage the attention of statesmen is the health of the people; for it refers to all those subjects which, if properly treated, may advance the comfort and happiness of man. A very great man, and a very great scholar, two or three hundred years ago, said that he always thought that in the Vulgate that wise King of Israel, when he said, 'Vanitas vanitatum, omnia vanitas,' should really have said, 'Sanitas sanitatum, omnia sanitas.' I am sure that had King Solomon said that, he could not have said a wiser thing." If the statesmen of the present day, and the future, will think less of the struggles of place and party, and more of the health of the people, they will not act as if the members of the profession, who practice the arts which are useful to all mankind, were unworthy of national reward and public gratitude. Nor can they regard, as the least of these claims, the efforts we are making for "the prevention of preventable disease."

ON CAISSON DISEASE,

WITH SOME SPECULATIONS AS TO ITS CAUSATION.*

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It has long been recognised that extreme variations in atmospheric pressure, either negative or positive, are capable of producing physiological disturbances, and even serious patho-

* Read at a meeting of the Glasgow Medico-Chirurgical Society, 21st April, 1893.

logical conditions. Probably the earliest observations on such states were those made by mountain climbers, who, as they rose to the highest altitudes, found certain disagreeable symptoms to attack them, which they grouped under the general term of "mountain sickness." The symptoms may be briefly summarised as nausea and vomiting, headaches of the most severe character, feverishness, hæmorrhages, lassitude, depression, and weakness. Humboldt's description is so graphic that, in spite of its familiarity, I cannot refrain from quoting it. It occurs in his story of his ascent of Mount Chimborazo, and runs as follows:—

"After an hour's cautious climbing the ridge of the rock became less steep, but the mists unfortunately remained as thick as ever. One after another we all began to feel indisposed, and experienced a feeling of nausea accompanied by giddiness, which was far more distressing than the difficulty of breathing. . . . Blood exuded from the lips and gums, and the eyes became blood-shot. There was nothing particularly alarming in these symptoms, with which we had grown familiar by experience. Once, when upon the Pichincha, though bleeding did not occur, I was seized with such violent pain in the stomach, and overpowering giddiness, that I sank upon the ground in a state of insensibility, in which condition I was found by my companions, from whom I had withdrawn for the sake of making some experiments in electricity. The elevation then was not so great, being less than 13,800 feet. On the Antisana, however, at the height of 17,022 feet, our young travelling companion, Don Carlos Montufar, had suffered severely from bleeding of the lips. All these phenomena vary greatly in different individuals according to age, constitution, tenderness of the skin, and previous exertion of muscular power; yet, in the same individual, they constitute a kind of gauge for the amount of rarification of the atmosphere, and for the absolute height that has been attained."

Similar experiences have been recorded by aëronauts as occurring when the balloons have reached exceedingly great altitudes. Seeing that, in the ascent of a balloon, the rise is so very rapid that on one occasion Mr. Glaisher reached to a height of 19,000 feet ($3\frac{3}{4}$ miles) in about half an hour, while in mountain climbing four or five hours would be necessary to attain to such a height, we should naturally expect that the phenomena produced by low pressure would be more constant and more serious in ballooning than in mountain climbing; but this is far from being the case. As a matter of fact, balloonists are very seldom affected with such troubles,

while in mountaineers they are far from uncommon. It would appear that some other element than rarification of the air must come into play in mountain climbing to account for this anomaly; and it has been assumed that the fatigue of the ascent, the muscular exhaustion, and quickened respiration may have something to do with the difference. Whymper, however, had the worst attack of mountain sickness on a day when he had done exceedingly little muscular work. He says—"When we others arrived at the second camp, we ourselves were in good condition—which was to be expected, *as we had ridden most of the way*; but in about an hour I found myself lying on my back, along with both the Carrels, placed *hors de combat*, and incapable of making the least exertion."

Many of the symptoms are undoubtedly due to deficient oxygenation of the blood, from diminution of the oxygen in the respired air, and hence in the lungs and the tissues. Such are the difficulties of breathing, and possibly the nausea and vomiting, and the rise of temperature. The hæmorrhages (especially the epistaxis) may be explained by the diminution of the support given to the mucous membrane by the atmospheric air. But it is difficult to understand how it is that on ascending to still greater altitudes the disagreeable symptoms should all pass away, and the mountaineer be able to breathe with ease, and even to enjoy the still further attenuated atmosphere; and that the still lower tension of the oxygen in balloon ascents should not produce even more dire results is still more inexplicable.

It is not, however, with the effects of lowered atmospheric pressure that I desire specially to deal in this paper, but the opposite condition—namely the physiological and pathological states resulting from increased pressure of atmospheric air. Compressed air is now being extensively used in engineering works, chiefly for the purpose of keeping out water from deep workings. Its use formed one of the chief features in the sinking of the main piers for the support of the cantilevers in the construction of the Forth Bridge, and it has been much used in boring tunnels beneath rivers, such as the Mersey tunnel and the subways beneath the Thames. It is at present being employed in this city in the construction of the tunnel beneath the Clyde at Finnieston, and in the subway running from St. Enoch Square, so that there is some probability that we may have ere long many opportunities for the clinical study of disease among such workers.

The name of "caisson disease" has been given to the group

of symptoms produced in those who work in compressed air, because the effects have been most frequently noted in men working in "caissons" in sinking piers for bridges and foundations for dock-walls. I cannot say by whom the title was first given, but the earliest complete account I have yet come across under that name is a paper by Dr. A. N. Smith of New York, under the title of "The Effects of High Atmospheric Pressure, including the *Caisson Disease*."

The caisson is a hollow cylinder of a suitable diameter according to the size of the pier or abutment to be built; those for the main piers of the Forth bridge had a diameter of seventy feet. The lower edge of the cylinder is bevelled so as to cut into the mud at the bottom of the water, and about seven feet above the bottom an air-tight platform (generally heavy concreted) is constructed, leaving between it and the bed of the river a chamber seven feet high. Into this chamber passes a shaft for the transmission of material and the ingress and egress of the workers. As soon as the caisson is fixed in its place, compressed air is pumped into the chamber through this shaft, the amount of pressure necessary depending on the height of the water on the outside of the caisson. As soon as the pressure of air is greater than that of the surrounding water, the water is expelled from the chamber and its place taken by the compressed air, and in this way space is left for blasting rock and excavating earth so as to embed the caisson on a firm and solid basis. Now it is evident that, if the arrangement ended here, every time a workman entered or left the chamber, and every time material was passed into it or from it, the pressure of air would immediately become the same in the inside as on the outside of the caisson, and the water would again flow into the chamber. To obviate this, the shaft opens into a small chamber called an *air lock*, which is worked much in the same way as the water locks on our canals, from which evidently the idea was obtained.

If a man wishes to enter the working chamber, the air in the lock is brought to the pressure level of the outside air by turning a cock which lets in the latter; he then enters the chamber and turns another cock which very gradually lets in the compressed air till the pressure in the lock is the same as in the working chamber, when he can with safety descend to the latter. On returning, the process is, of course, reversed. The same precautions are taken in passing material in either direction.

The safety of caisson working depends very largely upon the accuracy and carefulness with which the locks are used. The average labourer is proverbially careless of his own life and the lives of others, and many of the accidents which have taken place with caisson workers have resulted from disregard of the stringent rules laid down for the working of the air locks. When material is being removed the lock is opened and shut at very short intervals, and the changes in the pressure of air are produced suddenly, instead of gradually.

On first entering the chamber, the following are the phenomena experienced:—

1. There is ringing in the ears and deafness, both passing off after a short time.

2. The respiration increases in frequency, and is short and gasping.

3. The pulse runs up to 120 or over, but afterwards falls to the normal rate.

4. The volume of the pulse is reduced; the superficial vessels, both veins and arteries, are diminished in calibre, and the surface of the body, therefore, presents a blanched appearance.

5. The temperature of the body is raised, and, after about an hour and a half in the chamber, is found to be maintained at about one degree above the normal. If the air in the chamber is itself raised, the body temperature goes up still higher, and has been known to reach 101° F.

6. The skin is covered with sweat, but it appears that this results from the air in the chamber becoming soon saturated with moisture, and that there is really diminished elimination by the skin.

7. There is increase of appetite.

8. The amount of urine is decidedly increased, and the composition and sp. gr. are normal; this increase probably compensates for the diminished elimination by the skin.

9. The voice is altered, becoming more shrill, and the person speaks through the nose. Vivenot found that a lady singer gained a semi-tone when in the compressed air. It requires an effort to speak, and whistling is almost impossible.

These effects are experienced to a greater or less degree by all who enter the caissons, and some are felt by workers who have become accustomed to compressed air during many months. Some men are, however, much more affected than others, and it seems that much depends on build, constitutional state, soundness of the blood-vessels, and habit of body.

Managers of such works become familiar with the style of man who can stand it, and have little difficulty in selection, though sometimes they make mistakes. A correspondent has furnished me with some information which he obtained from Mr. Blackburn, one of the managers of the works at the Blackwall tunnel. Mr. Blackburn stated that, having been engaged in work of the kind for nearly 40 years, he had cultivated an eye, and could at once distinguish likely and unlikely men, but he could not undertake to state definitely the grounds for his decision. He generally preferred spare, muscular men with strong hearts. "When on the St. Clair tunnel, two big countrymen from Pensyl asked for a job; he chose one, and refused the other. After much talk, however, the second one persuaded him to change his mind, chiefly on the ground that the two were 'mates,' and did not want to be separated. He only consented, however, on the condition that the unsuitable one should not go down till next 'day shift,' as Mr. Blackburn would then be able to go with him. In violation of this condition, he went down the same night, and when Blackburn visited the shaft next morning he found him dead."

MM. Pol and Watelle, as far back as the year 1848, reported the case of a very robust workman, aged 40 years, who went down once only into the chamber, where there was a pressure of more than four atmospheres, came out in a short time, and died almost immediately, although the manipulation of the lock was so carefully managed that eight minutes were occupied in passing through it.*

In the previous paragraphs I have spoken only of the physiological effects. I must now deal with the pathological changes produced by working in compressed air:—

1. There is rupture of the *membrana tympani*; very few men who work in compressed air but have a considerable rupture of both drums. Many also suffer from *otitis media purulenta*, and are notably defective in their hearing.

2. Neuralgic pains are felt in the body and limbs, but more especially down the back.

3. There is often epigastric pain and vomiting, the matter vomited containing blood.

4. Paralysis, most commonly in the form of paraplegia, and involving both the *motor* and *sensory* nerves. In rare cases it involves the arms, and, in isolated examples, has also affected the face.

* *Ann. d'Hygiene Publique et de Médecine Légale*, 2^o series, T. i, p. 241-279.

5. Cerebral symptoms: headache, dizziness, double vision, incoherence of speech, unconsciousness.

Before proceeding to discuss these results, or to speculate on the mechanism of their production, I will give the clinical history of a patient at present under my care, whose condition is sufficiently grave to suggest that, as engineering works carried out in this manner increase in number, we may expect to meet with many fatalities.

R. S., æt. 52, a joiner by trade, residing at Ardrossan. Has been a healthy man all his life, and never had any illness, except orchitis, and what he describes as inflammation in his left side. He was attended by a medical man, and completely recovered. He has been married twenty-six years, and has four children living and one dead—the latter having died of "bronchitis" in his seventeenth year. Patient denies ever having had venereal disease.

Five weeks before he came under my care, patient began to work in a caisson at Grangemouth, and for some time felt no ill effect, excepting on one occasion when he got deaf in his left ear. The deafness only lasted for a short time, and he quite recovered his hearing. On 30th January he was working under a pressure of about thirty pounds to the square inch, when he was taken with a "weakness," which he describes as beginning at the shoulders and toes and travelling downwards and then upwards till the two streams met at his umbilicus. He then became completely paralysed in both arms and both legs. He vomited after he was got out into the open air, and then became unconscious, remembering nothing until he found himself in bed, and his friends putting hot bottles to his feet. None of the men working in the caisson with him at that time were injuriously affected, although on more than one occasion some of them had pains in their arms and legs, and suffered from epistaxis on coming out. When he recovered consciousness his arms pained him excessively, but there was no pain at all in his legs. Sensation then began to return to his body and arms, and the power came back to his arms. The pain in his arms lasted about eight hours, by the end of which time he had regained sensation and motion in the arms, but the legs remained paralysed from the hips, and he had lost control of his bladder and rectum.

On admission (14th February, 1892), it was found that all the reflexes of the lower extremity were abolished, but we thought this was largely due to the journey, as the doctor who attended him at Grangemouth sent a note in which he stated

that the plantar reflex had been improving much during the previous week. Sensation of touch was fairly good over the lower extremities generally, but over the big toe of left foot was scarcely so acute as elsewhere. Sensation of pain was abolished in both legs right up to the groin. Sensation of temperature was weakened, but not abolished. The feet were markedly everted, and there was complete loss of control over the bladder and rectum.

Two days after admission it was noted that the plantar reflex had returned, and that the cremasteric reflex was feebly present.

Since that time his condition has got distinctly worse in spite of massage and the use of the constant current. He has wasted considerably. Especially is this marked in the anterior tibial muscles and muscles of the front of the thigh. The plantar reflex of both feet is exaggerated, and, notwithstanding that he has been on a water-bed since the day of his admission, a large sacral bed-sore has formed.

The electrical reaction of the muscles of his leg and foot was tested on 19th February, with the following result:—

The muscles of both legs and thighs responded feebly both to the continuous and interrupted current; there was no reaction of degeneration. The only muscles which failed to respond were the extensor brevis digitorum muscles of both feet.

Further enquiry also elicited the following facts:—

He usually worked in the caisson for eight hours a day, but was out for an hour after having worked four hours. At the time he was taken ill he had been working in the caisson three hours. He does not think there had been much opening and closing of the lock at that time, certainly not more than usual. His sight is normal. There are no traces of hæmorrhage in either fundus, nor is there any haziness of the edge of the disc to suggest neuritis.

His hearing is good, and there is no perforation of the drums.

An interesting feature in this case is the presence of sensation in the legs, I mean sensation of touch. In all the other cases of caisson disease with paralysis that I have been able to get particulars of, both sensation and motion were abolished.

Observers who have reported such cases are quite unanimous in the opinion that the accidents result from the too sudden *removal of pressure*. Thus Smith in the article cited states—“It is the *removal* of the pressure and not the pressure itself

that is the immediate cause of the seizure, which occurs at the time when the victims are coming from under the pressure, or even some hours subsequently." Paul Bert also, in his classical work, *La Pression Barométrique, Recherches de Physiologie Experimentale*, puts it even more strongly when he says:—"The danger is not in entering into a compression chamber, neither is it in staying there for a longer or shorter time—decompression alone is to be feared; one pays for it in coming out."

It has also been pretty generally agreed that the immediate cause is hæmorrhage into the spinal cord, an apoplexy of the cord as the French call it. It would appear, however, that in some instances the brain itself has shared in the disaster; while, when it is limited to the cord, the distribution and limits of the paralysis are so anomalous as to suggest that there are a number of small hæmorrhagic infarcts rather than one considerable hæmorrhage. Thus in my own case it is notable how much greater in extent was the motor than the sensory paralysis, and there is the more curious character that while sense of touch was almost normal, the temperature sense and the sense of pain were distinctly defective.

Post-mortem examinations in deaths from caisson disease have not been very numerous, and further observations are necessary before its pathology can be definitely stated. In cases in which there has been paralysis there is invariably softening of the spinal cord and congestion of the cord and brain; in one instance it is stated that the anterior cornua of the grey matter, and the lateral columns of the white, were softened throughout the entire length of the cord. Sometimes meningitis, both cerebral and spinal, was found, and one record states that there was extravasation of blood between the arachnoid and pia mater of the cord.

Paul Bert drew attention to the influence which increase of atmospheric pressure must have upon the gases of the blood, and pointed out that the external pressure must increase the pressure of the gases in the internal organs, and lead to their escape into the tissues, especially in the lungs and nervous centres, where the softness of the tissue offers very little resistance to the gases. This suggestion, advanced entirely on theoretical and experimental grounds, received remarkable confirmation in the *post-mortem* examination on one of the workers employed in sinking the piers for a bridge across the Limfjord in Denmark. The autopsy was made by Dr. Weiberg of Aalborg, the medical man in attendance on the workers, and he makes the following report:—

"The worker went home apparently well. On the way he became ill, and fell dead as if struck with a thunderbolt. The day following, when the *post-mortem* was made, the body was already in a state of rigidity. There was a marked cyanotic discolouration of the body, more especially on the chest, under the armpits, and on the left arm, where also there was a distinct feeling of emphysema. On making an incision in these situations, there escaped a sanguinolent serum markedly mixed with air. The spleen was very emphysematous, and its surface crackled on pressure; and, on making an incision into it, blood mixed with a large quantity of air escaped. There were no bubbles of air in the aorta, jugular veins, or iliac and femoral arteries. The kidneys and liver were normal, the urinary bladder empty. There was a very distinct and voluminous development of air in the basilar artery, the superior longitudinal sinus, and superior cerebral veins; there was also air in the mesentery. Between the bubbles of air were very small spots formed of almost liquid blood. The spinal cord was not examined" (quoted by Paul Bert, *La Pression Barométrique*, p. 1,123). In another autopsy M. Gallard found "numerous emphysematous patches on the lungs, both interlobular and vesicular; numerous punctuate ecchymoses in the pleura and pericardium." "It seems to me," he adds, "that the blood contained numerous bubbles of gas."

Paul Bert's original explanation was that the gas bubbles in the vessels acted mechanically by obstructing the circulation, and that they thus determined the occurrence of hæmorrhages in the nervous centres and lungs. In some cases, however, the bubbles in the tissues are themselves large enough to damage the tissues both by pressure and by laceration.

While it is undoubtedly true that the majority of serious accidents which take place, both with workers in caissons and with divers, occur after the pressure has been removed, and sometimes even after an interval of hours, in a considerable number of cases the symptoms come on when the person is still in the compressed air. Nor is it difficult to understand how this can take place if we accept Bert's theory, for it is plain that under high barometric pressure the superficial vessels are almost emptied, and the gases of the blood will be even more seriously affected by the pressure than the fluid itself. Thus the vessels of the internal organs (but especially the brain and spinal cord) become distended with blood, and in a condition to be easily ruptured; the gases under pressure

readily accumulate in bubbles, or escape from the vessels into the tissues.

In the case I have detailed, the onset of the illness took place when the patient was in the caisson, and I understand that one of the foremen at the St. Enoch Square subway works was also seized with paralytic symptoms when in the air chamber.

The most serious risks the men run depend on the frequent opening and closing of the air lock in the passing in and out of the material for the work. When I was in the air chamber at the subway works I noticed that, while the air was admitted into the lock slowly when men were passing in and out, it was not so when material passed. Then, the stop-cock was turned on suddenly, so that the inrush of air produced a loud noise like a pistol-shot. As this took place eight or ten times during the twenty minutes or so we were in the tunnel, it must have produced considerable and sudden variation in the pressure in the working chamber. In so large a tunnel as the one under Buchanan Street—extending, as it did at the time of our visit, nearly up to Gordon Street—the small quantity of air introduced each time the lock was used would not dangerously influence the large quantity in the tunnel. But in small chambers the case is very different. My patient was working in a chamber 9 feet in diameter and 6 feet high. We can quite understand that variations of pressure have a more serious effect, and are indeed liable to be very dangerous under such circumstances.

Mr. Moir, one of the engineers of the Forth Bridge, laid it down as a rule that the reduction of pressure in the lock should not be more rapid than a minute for each 5 lb., and M. Triger, the inventor of caisson working, insisted on seven minutes being occupied in bringing the air in the lock to the pressure-level of the air outside, or *vice versa*.

We have spoken of sudden deaths taking place on issuing from the chamber, but we must point out that some of the deaths take place after considerable intervals—in one case of complete paraplegia the unfortunate victim lingered on for two years before death released him. In the majority of instances the prognosis is good, and very serious and extensive paralysis has been recovered from perfectly, sometimes in hours, sometimes in weeks. On the other hand, it is evident that if the cord has undergone extensive degeneration, the improvement can only be very limited; and I fear that the case under my care is one where the prognosis is grave for this very reason.

When accidents of this kind occur immediately on leaving the caisson, the best treatment is to put the man back in the air lock, and subject him to a modified pressure until he shows signs of recovery. In some large works of this nature a special hospital compression chamber is made, which has a window in it through which the man can be watched, so that the pressure can be modified as may be seen to be necessary.

The essentials to safe working may be briefly stated as follows:—

1. Healthy workmen, of spare habit of body, not alcoholic, and having sound hearts.
2. Show decompression both in passing in and out of the chamber, and in passing material through the lock.
3. Men should not be constantly going in and out of the chamber. Two shifts of four hours each are quite as much as men can stand, and when in the workings they should stay the four hours.
4. The compressed air is very hot when it passes from the compressing cylinders; it should be cooled to about 70° F. There is no doubt that men working in the usual high temperature of the caissons are liable to pulmonary troubles, and their risk of caisson disease is thereby much increased.
5. Newcomers should not stay in more than four hours a day for the first few days.

Very little can be said as to treatment of caisson disease when once it has set in. Most of the fatal cases are so apallingly rapid that there is absolutely no hope of effecting anything by treatment. In others, again, recovery takes place by the unaided *vis medicatrix naturæ*, and the medical attendant has no temptation to prescribe.

Ergot has been recommended as likely to cause contraction of the vessels, and thus diminish the liability to hæmorrhages, and iodide of potassium as aiding absorption after hæmorrhages have formed, but both drugs are of doubtful service in this condition. Blisters and cupping over the spinal cord may cut short inflammatory processes, but such agents are liable to cause sloughing if there is trophic disturbance, and, at the best, materially add to the discomfort of the patient. In paraplegia the Faradic current and massage are of use in assisting the nutrition of the limbs and maintaining the muscles in health till the spinal cord has recovered its function.

CLINICAL MEMORANDA,
BEING SELECTED CASES FROM THE WARDS OFDR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY WM. R. JACK, M.B.)

V.

9. *Rheumatism with Cerebro-Spinal Symptoms.*

T. G., æt. 32, a van driver, was admitted to Ward II on 21st April, 1893, complaining of pain and stiffness in the back of the neck, and of pain in the lower part of the abdomen.

On 9th April, a cold and windy day, he was driving his van all day. He felt in his usual health that night, but next morning he woke with a severe headache, and had a shivering fit which lasted all day. At the same time he had sharp pains in the joints of his legs. He lost his appetite entirely, and took to bed. There was no vomiting or nausea. His bowels were at first costive, but have become somewhat loose since 16th April, when he took a dose of medicine. The joints have not swollen at any time, but have been very painful on movement, and the pain has gradually travelled from the legs up the body. He has perspired freely during the illness, but the odour of the perspiration presented no marked peculiarity.

On 14th April he was wakened in the early morning by very severe pain in the frontal and occipital regions, which made him dazed and stupid, and caused temporary impairment of vision. Later in the day he had several attacks of vomiting preceded by sickness. He does not recollect the details of this part of his illness, but was afterwards told by his wife that he had been delirious. Since the 14th he has constantly suffered from stiffness of the back of the neck, preventing motion of the head to either side. Any attempt at rotation caused a pain which shot up the sterno-mastoids, and was worst behind the ears. He also felt pain along the costo-vertebral joints, though not directly over the spinous processes, but he has had no palpitation, dyspnœa, or pain on the left side of the chest. There is no cough.

When a lad, after exposure on his van, he had a "fever" which lasted three weeks. Beyond that his feet and legs swelled, he remembers nothing of the illness, and from that time till now his health has been good.

There is no history of rheumatism in the family.

On admission he had a dazed appearance, and his eyes were dull and lustreless. There was tenderness of the muscles at the back of the neck, and also of the costo-vertebral joints, but none over the spinous processes. He perspired freely, and seemed very weak. The pulse was 88, regular and soft. The right border of cardiac dulness was at the left margin of the sternum, the upper border at the lower margin of the third rib, and the left in the nipple line. There was no murmur, but the first sound was slightly muffled. The lungs and liver were healthy.

23rd April.—Patient has had attacks of violent delirium throughout the day, attempting to get out of bed, &c. His pupils are rather sluggish in response to light, the right being rather more dilated than the left. The temperature has been generally above 100° , the highest being 101.4° at 4 P.M. yesterday. Pulse remains regular (88). He never asks for food, but does not refuse fluids. The evacuations are not passed in bed.

25th April.—Temperature still slightly over 100° . He lies on his side, sunk in the bed, with his knees a little drawn up. He recognises nobody, and is quite delirious. The pupils are very sluggish, but even. He has a slight cough, which gives him frontal pain. Pressure on the back of the neck elicits merely a slight wrinkling of the forehead. The pulse is still regular.

He continued drowsy and delirious with slightly elevated temperature till the 29th, when the temperature fell to normal, and he became more rational, although he still wandered at intervals. On the morning of that day, and on the day before, he had been very sick. The pulse was regular throughout.

From this point he improved in every way. Delirium disappeared, the headache and costo-vertebral tenderness had gone, and also the pains in the joints. He was moved from the side-room into the ward on 5th May. This was followed by a relapse, the temperature rising again to 102.2° ; but on the 7th it fell once more to normal, and has remained so since. On 10th May he was practically convalescent, and complained of nothing but weakness. The right pupil, however, was still slightly larger than the left.

Remarks by Dr. Anderson.—The symptoms in this case were so alarming when the patient was at his worst that few who saw him had much hope of his recovery. The fact, however, that the illness apparently resulted from a chill, and set in with pains in the joints accompanied by profuse perspiration, led to the hope that the cerebro-spinal affection was of a rheumatic character. Accordingly, on 21st April, he was put upon salicine, 10 grains every hour, increased on the 23rd

to 20 grains, along with milk diet, and with the very satisfactory result above mentioned, thus fully verifying the opinion which had been given.

10. *Shell of Hazel-nut in Right Bronchus.*

C. M'D., æt. 16, a domestic servant, was admitted to Ward VII on 16th March, 1893, complaining of cough, wheezing, and shortness of breath of five months' duration.

The family history is unimportant, and the patient has been quite healthy but for frequent headaches. She is not usually costive.

Five months ago she was cracking a nut in her mouth, when the shell broke into several pieces. At the moment she happened to laugh, and accidentally "swallowed" the nut. As it passed over she felt a "jag" in the throat at the level of the larynx, and had a sensation of choking, accompanied by violent coughing. The pain and dyspnœa, which were very alarming, lasted for ten minutes, and then passed off. She went at once to a doctor, who made her drink some water, and said she had probably merely swallowed the nut, but in doing so had hurt her windpipe. Very shortly after the accident her respiration became noisy and wheezing, and this symptom has never disappeared. It was worse during the succeeding night and day than it has been since, and from that time it has never varied in intensity. A fortnight afterwards she became feverish, and for two days suffered from headache. She took to her bed, to which she was confined for eight weeks. A week after the fever she developed a cough, and a feeling of soreness set in at the base of the right lung, three inches below the angle of the scapula. It was aggravated by drawing a deep breath, or by coughing. It lasted for a month, and then disappeared. The cough persisted for a month longer, and was accompanied by expectoration, at first white, frothy, and slightly streaked with blood; afterwards yellow, and free of blood. At this time she was said to have congestion of the right lung. While in bed she perspired much, but not more at night than in the day. This ceased when she began to go about. From Christmas, 1892, until seven weeks before admission she was not confined to bed, and had no other symptom than the wheezing. About the end of January she again saw a doctor, and was ordered back to bed. She was told she had inflammation of the windpipe, and fly-blisters were applied. Since then she has kept her bed. Her voice has never been affected during her illness.

While lying she has lost flesh and colour. She has also had frequent bleedings from the nose, and occasionally from the ears. These occurred at irregular intervals. The attack sometimes lasted for a week, and was often repeated at night and in the morning for several days. She has only menstruated twice, once in December and once a fortnight before admission. On the latter occasion she caught cold, became feverish, and suffered from headache. Her cough also got worse. Since admission she has noticed a diminution in the quantity of her urine.

On the day of admission Dr. Walker Downie examined her larynx, and found it normal.

On examination the patient appears somewhat pale. The wheezing respiration is distinctly audible on standing beside the bed. Dulness is present at the right base behind, extending upwards to within a short distance of the angle of the scapula. Musical and wheezing râles are audible all over the right side of the chest, especially behind and towards the base. Respiration is weaker all over the right side of the back than on the left, and the vocal resonance and fremitus are diminished in the dull area. The expectoration is free from blood.

The heart and other organs are healthy.

The patient remained in much the same condition until 28th March, when, after a little coughing and expectoration of blood-stained sputa, she coughed up two small pieces of nut about one-eighth of an inch square. There was a slight soreness in the throat before they were brought up. There was no further change until 3rd April, when she expectorated another piece of nut-shell, equal in size to about two-thirds of the shell. No blood was expectorated with it, but its passage hurt the throat considerably. The wheezing stopped immediately after the shell had been got rid of, and thereafter all her symptoms rapidly disappeared. Within a few days the cough had completely ceased, and shortly afterwards the basal dulness cleared up entirely. She felt in every way quite well, and was dismissed on 3rd May, 1893.

11. *Hydronephrosis.*

A. G., aged 30, a weigher by trade, was transferred from Dr. Buchanan's to Dr. Anderson's wards on 4th February, 1893. He complained of pain and swelling in the right side, under the lower ribs, of about three weeks' duration.

The family history is unimportant.

But for an attack of measles fifteen years ago, patient has

never been confined to bed. His health has always been excellent but for an occasional and slight dyspepsia.

Three weeks before admission he made a false step while coming down a stair, and, to prevent falling, twisted his body violently, so that he "strained himself." The next time he passed water it had a dark red colour. He does not remember whether or not he had emptied his bladder before the accident. The redness of the urine continued for about a week. At first there was no pain, but in a couple of days it set in on the right side, just under the lowest ribs. It was at first sharp, but became, after a little, dull and heavy. Since then it has been almost constantly present, but is not now nearly so severe as at first. About the same time a swelling began to appear in the same situation, which gradually increased in size for some time—he is not sure how long—but latterly it has remained stationary. A doctor examined his urine, and told him that the colour was due to blood. The blood was intimately mixed with the urine during micturition.

On examination, a soft elastic swelling is discovered lying under the right lower ribs. It is slightly tender to pressure, extends from the fourth rib to 3 inches below the costal arch, and round the right side to the back, filling up the lumbar region behind. It is quite dull to percussion. In front the dulness is continuous with that of the liver, and behind it occupies the right lumbar region, extending upwards to the base of the lung, to within a short distance of the angle of the scapula. In front a portion of the tumour, lying about 2 inches under the costal arch and slightly to the left of the nipple line, is more prominent than the rest, and is semi-fluctuant. There is no clear percussion in the situation of the ascending colon.

The other organs are healthy.

The urine has a sp. gr. of 1015, and contains abundant urates, but no albumen or blood.

The temperature from 4th February to 11th February varied in the morning between 98·6° and 101°, and in the evening between 100·4° and 102·8°. The patient is somewhat thin, and perspires a good deal.

On 12th February blood appeared in the urine for the first time since admission. The urine was very dark, acid, of sp. gr. 1020, and contained albumen and a copious bloody sediment. Dr. Anderson drew off a small quantity of fluid from the prominent portion of the swelling, which, with the urine, was sent to Dr. Coats for examination. His report was as follows:—"The fluid removed by puncture and the urine

have somewhat similar characters. In both there are many red corpuscles, mostly shrunken, and probably old, and in both there are many leucocytes, mostly fatty and old. The pus corpuscles are most abundant in the urine, and the blood in fluid. The two have probably the same source." During the afternoon of the 12th the temperature rose to 104.2° , fell at 8 P.M. to 102.6° , but rose again at 4 A.M. on the 13th to 104° . At this level it remained, in spite of two doses of 10 grs. of quinine, till midnight, when it fell to 101.8° , and next day (the 14th) varied between 99.4° and 101° . Blood remained abundant in the urine till the morning of the 14th, when but a small quantity was present. Later in the day, however, it was more copiously passed, but on the 15th it disappeared entirely. Owing to the puncture, the anterior prominence disappeared. The tumour also contracted somewhat, and on the 17th measured, in the nipple line, $7\frac{1}{2}$ inches. The temperature varied between 98.4° and 101° , showing a distinct evening rise; but the patient expressed himself as very comfortable.

From this time there was little change in his condition. The evening rise of temperature became somewhat less marked and intermittent. Blood did not reappear in the urine, the quantity of which varied, as a rule, between 40 and 60 oz. On 1st March 70 oz. were passed, and on three occasions thereafter 76 oz. The sp. gr. varied somewhat; on 20th February it was as low as 1010, and on 23rd March reached 1022. Albumen was absent, except for a trace which was noted on 1st March.

The tumour did not contract any further. The patient left of his own accord on 24th March, 1893, Professor George Buchanan being of opinion that, on the whole, operative interference should be avoided.

NOTES OF A CASE OF CONGENITAL DIAPHRAGMATIC HERNIA.

By ROBERT J. MARSHALL, M.B., C.M.,
Whitechapel Infirmary, London.

ON 3rd May, 1893, a woman in labour was admitted to the Infirmary. On examination the membranes were found presenting almost at the perinæum; these were ruptured, and

with a single easy pain a male child was born. The child was very blue, and did not breath till slapped on the buttocks. It then gave one or two short gasping inspirations, and a short crying expiration, followed by very faint respiration till slapped again. Each time it was slapped it gave the short inspirations followed by the crying expiration mentioned above. The colour got a little better, and when the cord ceased pulsating a few minutes after birth it was tied, and the child, which immediately became quite blue, was put into hot water and cold sprinkled on its face, on which it gave short gasping breaths, but no cry. Artificial respiration was carried on for about ten minutes, the child giving a gasp about every minute till it died.

Post-mortem Examination.—Well formed male child, weighing 5 lb. 8½ oz. (it looked heavier). The left testicle was in the scrotum.

On opening the abdomen, the liver seemed to occupy almost the entire cavity. The bladder, which was distended with urine, occupied the lower part of the abdominal cavity, and on the left side could be seen the descending colon. The right lobe of the liver was twisted over to the left side, so that its anterior border, instead of being horizontal, was vertical, the gall-bladder having a position on the extreme left. The whole liver was turned forwards, so that the interior surface looked backwards instead of downwards. To the left of the left lobe is seen a small part of what turned out to be the spigelian lobe.

The kidneys and suprarenals were normal and in position, and the right testicle was found in the abdominal cavity, behind the liver.

On removing the sternum the remaining abdominal organs were found occupying the entire left pleural cavity, and covering the thoracic organs on the right side, except at the lower part, where the heart was visible. On the left side were great intestine, ascending and transverse colons and vermiform appendix, pancreas and spleen, a part of spigelian lobe of liver. On the right was the entire small intestine. On removing the intestines from the pleural cavities the lungs, heart, and thymus were found. The left pleural cavity was entirely empty of its ordinary organs; the trachea, œsophagus, and aorta were displaced to the left. The left lung was very small and unexpanded, and looked merely an appendage to the other thoracic organs. The right lung was covered in front by the thymus and heart. It was small, but fully expanded, and its lobes were quite apparent.

The heart was normal. The foramen ovale closed with a very thin membrane.

The diaphragm was imperfect, being almost wanting on the left side. The part of spigelian lobe within the chest was separated from the left lobe by a narrow ridge of diaphragm. The left crus over the aorta was also complete.

The liver weighed $5\frac{1}{2}$ oz. ; heart, lungs, and thymus, $1\frac{1}{2}$ oz.

CASE IN WHICH A TUMOUR WAS REMOVED BY OPERATION FROM THE CEREBELLUM OF A CHILD WHO SUFFERED FROM HYDROCEPHALUS.*

(With *Lithographic Plate.*)

By DR. R. H. PARRY,
Surgeon to the Victoria Infirmary.

J. S., aged $5\frac{1}{2}$ years, was admitted into the Victoria Infirmary on 26th January, 1893, suffering from blindness of eight weeks' duration.

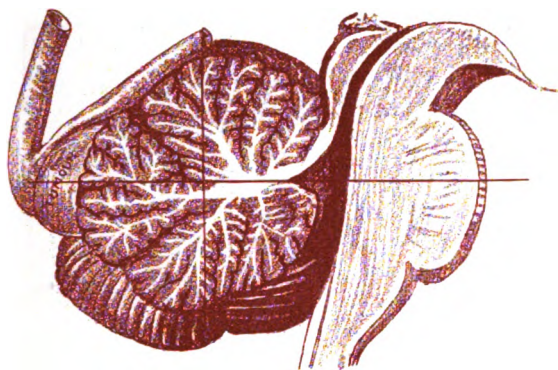
Previous History.—Was a healthy child ; some time ago he had a mild attack of measles, and is said to have had a fit then. In September, 1892, he was much troubled with diarrhoea, which reduced him very much.

Family History.—Two brothers died from sequelæ of measles. One had convulsions. Father suffers from phthisis.

History of Illness.—Eight weeks ago patient had a fall on the back of his head. Shortly after the fall he complained of headache, and his vision became affected. Dr. Hunter saw him in the dispensary of the Victoria Infirmary, and reported the condition of his eyes as follows:—"Optic disc pale (almost white) and contracted. Diminished calibre of retinal vessels. The atrophy is probably secondary to a past engorgement of the disc. No appearance of tubercle is seen."

On admission, patient was totally blind. Head very much enlarged, measuring $13\frac{1}{2}$ inches from glabella to external occipital protuberance, $12\frac{1}{2}$ inches from auricle to auricle through bregma, 21 inches in circumference, $8\frac{1}{2}$ inches between parietal eminences. He was a bright intelligent child, and answered questions quite readily. When examined in bed, he

* Read at a meeting of the Glasgow Pathological and Clinical Society, 13th March, 1893.



MEDIAN SECTION OF CEREBELLUM
TUMOR SEEN ON SURFACE OF LEFT HEMISPHERE



SECTION $\frac{1}{2}$ INCH FROM MIDDLE LINE



SECTION 1 INCH FROM MIDDLE LINE

seemed to have complete control of the movements of arms and legs, but when walking he required some assistance, his gait being a little unsteady, probably due to his blindness and to the weight of his head. Apart from the optic, the cranial nerves were not affected. The superficial and deep reflexes were normal. For the first three weeks he was kept under observation. Temperature, pulse, and respirations were noted morning and evening. The average temperature was about 97°; the lowest, 96·2°; the highest, 98·2°. The pulse averaged about 90; on one occasion it was 116 per minute. The respirations were normal.

Sometimes patient complained of headache, but this was not a prominent symptom. The pain could not be localised by tapping the head. It seemed to be more of the nature of frontal headache. There was no vomiting. Percussion of the skull gave a dull tympanitic note, and this was more marked along the coronal and sagittal sutures. The temporal and posterior auricular veins were very prominent on the left side. The cranial nerves were tested on several occasions, and no evidence of paralysis was noticed. Appetite was good and the bowels were regular. Patient gained in weight and strength.

Diagnosis.—From these symptoms I concluded that the cause of the hydrocephalus was a tumour in the cerebellum, and, as the optic was the only cranial nerve involved, the head enlarging so rapidly, and no inco-ordination of movements of arms and legs, I thought it was at the posterior part of the cerebellum and near the straight sinus, and from the history I believed it to be a tubercular tumour.

An attempt was now made to localise the tumour to the right or left hemisphere. I felt justified in excluding the middle lobe, as there was no evidence of inco-ordination, and a small tumour would not account for pressure on the straight sinus and the left lateral sinus, while a large tumour, extending from the right or left hemisphere to the middle lobe, would be followed by some, if not all of the following symptoms:—Pain, headache, vomiting, irritability, drowsiness, inco-ordination, convulsive movements of limbs, speech slow and hesitating, changes in pulse and respiration. As I mentioned before, the temporal vein and posterior auricular vein, on the left side, were prominent. On the right side they were not visible. The dilatation of veins on the left side was due, I thought, to pressure on the left lateral sinus, therefore interfering with the blood going from the diploe into the sinus, and causing it to pass into the superficial veins of the scalp.

Dividing the left hemisphere of the cerebellum into four

parts by a vertical and horizontal line, it will be evident that the two parts in front of the vertical line will include the crus of the cerebellum, and will be placed near the medulla oblongata. Lesions of the crus give rise to pain, but in this case there was little or no pain, and no symptoms of pressure on the medulla. For these reasons I thought it improbable that the tumour could be situated in the anterior part of the left hemisphere. A tumour in the posterior half might not give rise to either general or special symptoms, unless it was a large tumour and extended to the middle lobe, but I had no reason to suppose it was a large tumour, and as I had to account for pressure on the straight sinus and left lateral sinus, I localised it to the posterior and upper part of the left hemisphere of the cerebellum.

A week before operation patient was shown to the members of the Southern Medical Society, and the position of the tumour was then pointed out.

I obtained permission to operate, but owing to some unfavourable symptoms I was compelled to reconsider the question of operation. He had a fit which passed off almost immediately, and for a day or two his pulse was rapid and irregular. After this he improved and seemed in his usual health, and I operated.

Before describing *the operation*, I might mention *the points* I had *in view*—(1) To relieve the pressure on the brain, improve the sight, and reduce the size of the head; (2) to remove the tumour.

Attempts have been made to relieve the pressure by tapping the ventricle through an opening in the vertex of the skull, but as it is impossible to determine accurately the amount of fluid to withdraw to relieve the pressure without causing collapse of the brain, the operation has not been attended with very satisfactory results. It seemed to me that if discs of the occipital bone were removed, so as to allow the cerebellum to expand, the pressure of the tumour on the sinuses would be relieved, and the cause of the hydrocephalus would be for a time removed. The fluid in the ventricles would pass into the sub-arachnoid spaces and be absorbed, and pressure externally on the cranial bones would no doubt assist this. Would any changes take place in the optic disc? is an important question for the surgeon. The prognosis in this case was very bad. As optic atrophy is a very early symptom of the disease, and is a serious complication of tumour of the cerebellum, the cause of the engorgement of the vessels should be removed early, and I think the opera-

tion I have suggested is the best method of meeting these complications.

Operation—9th March, 1893.—An incision was made from the mastoid process to the external occipital protuberance, and another from the protuberance downwards in the middle line for about two inches. The skin, muscles, and periosteum were raised from the bone—several small veins which emerged from the bone were divided and bled freely. At this stage the operation had to be stopped, as patient's breathing was not good, and he looked very ill. Artificial respiration was performed. He improved, and I was able to go on with the operation. In separating the structures near the middle line, a large vein was opened, which communicated with one of the sinuses in the skull: this bled very freely. The foramen through which it passed was plugged with a piece of sponge, and to all appearance the hæmorrhage was arrested. Again the breathing gave some anxiety, and once more we had to perform artificial respiration, and continue it for some minutes. I hesitated to go on with the operation, as he had lost so much blood and looked very ill. The plug came out while artificial respiration was being performed, and no doubt accounted for the great loss of blood. A disc of bone was removed, the dura mater incised, and the tumour exposed. Some of it was scraped away with a Volkmann spoon—as much as I could see or feel through the trephine hole. Although the whole of the tumour was not removed, I could not prolong the operation any further. I felt satisfied I had removed enough to relieve the pressure on the sinuses. Superficial stitches were put in, and the patient sent to bed. He did not regain consciousness, and died some hours after the operation.

The interest of the case lies (1) in the localisation of the tumour, (2) in the treatment of the complications, and (3) in the cause of death, which I believe was due to the hæmorrhage.

Post-mortem report by Dr. T. K. Monro.—The body of the child is very well nourished. The head is unduly large. The pupils are somewhat dilated. The head has been shaved, and a vertical cut of two or three inches extends from about the external occipital protuberance downwards towards the nape of the neck; while from the same point outwards to the back of the left ear another cut extends.

On opening the body, a mass consisting of a few caseous lymphatic glands is found about the upper part of the anterior border of the left lung. Such glands are not found in other

parts of the body, and the lungs themselves present no indications of present or past tuberculosis. Adhesions, probably of old standing, but not of great firmness, are present in the abdomen. Thus the liver is firmly adherent to the diaphragm, and the coils of small intestine to one another. Small tubercular nodules are present in the serous coat of the intestine here and there, but there appears to be no enlargement of the mesenteric glands. Near the upper part of the large intestine is a pigmented cicatrix, with its length transverse to the length of the bowel. Owing to the adhesions it is difficult to examine the small intestine. A portion of it, however, is opened and inspected, but no evidences of ulceration are found in it. A solitary little nodule, possibly tubercular, is observed under the capsule of the liver.

The bone of the skull is unduly thin. The individual bones are distinctly movable on one another at the sutures. On tapping the calvarium, as it is held by the coronet, a sound is produced which is slightly suggestive of a cracked pot. A foramen of abnormal development passes obliquely through the occipital protuberance, passing thus almost directly to or from the position of the torcular. The sinuses of the dura mater are free from coagulum, and the straight sinus in particular is very capacious.

While the brain is being removed, clear serous fluid wells out from its base in large quantity. The lateral ventricles are dilated, their floor being greatly increased in extent, and covered with a great number of blood-vessels, which radiate outwards from the region of the choroid plexus.

A tumour mass is situated in the posterior portion (less than half of the antero-posterior measurement) of the left hemisphere of the cerebellum, and apparently occupies all the breadth of that portion of the lobe. It is of very firm consistence as compared with the cerebellar tissue, and rather more of a yellowish-white and less of a greyish colour than the surrounding normal tissue.

The kidneys, spleen, heart, and lungs present nothing remarkable.

Microscopic examination of a piece of the cerebellar tumour establishes its tubercular nature. Giant cells, with multiple nuclei, and caseous necrosis of the tissue involved in the morbid process, are observed.

As seen on the upper surface of the left cerebellar hemisphere, the tumour is practically confined to the postero-superior lobule. It is seen on the mesial aspect of this lobule, and along the greater part of its posterior border; further, though

it is not seen from above, at the lateral angle of the cerebellum, the hard material of the tumour can be here felt in the substance of the organ. In its mesial portion, the tumour comes close up to the post-clival fissure, and at one part, about half way between the middle line and the lateral angle of the cerebellum, it appears actually to cover this fissure and invade the posterior crescentic lobule. Except at the posterior border, the tumour is not seen on the under surface of the cerebellum.

A longitudinal section of the left cerebellar lobe, half an inch from the middle line, displays the tumour in the posterior and upper part, the cut surface of the growth being roughly circular in shape, and (in the hardened brain) about seven-eighths of an inch in diameter.

A similar section, half an inch further from the middle line, shows the tumour now occupying all the posterior region, both above and below. It is less regular in form here, and extends further forwards near the upper and lower surfaces than in the middle of the substance of the organ. A number of caseous-looking areas can be here seen, more or less detached from one another.

Half an inch further to the left, section shows the tumour more circular, or rather elliptical, in form, and more towards the upper aspect again. The antero-posterior measurement is seven-eighths of an inch. In the left occipital fossa, cerebellar or tumour tissue is adherent to the dura mater over an area measuring $1\frac{1}{2}$ inch vertically, and nearly $2\frac{1}{2}$ inches transversely (in hardened specimen).

CURRENT TOPICS.

THE LATE SIR WILLIAM AITKEN.—An ornate brass in memory of the late Sir William Aitken has just been placed in the chapel of the Royal Victoria Hospital at Netley. It bears the following inscription:—"This tablet is erected to the memory of Sir William Aitken, Knt., M.D., F.R.S., LL.D., Professor of Pathology, by his fellow-workers in the Army Medical School, in admiration of his eminent abilities, upright and honourable character, and ever constant loyalty as a friend and colleague. Born 23rd April, 1825; died 25th June, 1892." The work has been executed by Messrs. Rose & Son, engravers, of Southampton.

TABLE D'HOTE DINNERS IN RAILWAY TRAINS. — The Midland Railway Company's announcement of the above, to commence both in first and third-class carriages next month, is more of a new departure than it even appears to be, as the work will be done entirely by the use of compressed oil gas in cooking apparatus specially designed by Messrs. Fletcher, Russell & Co., Limited, at their Warrington house. The gas is carried in cylinders under the saloon, and it is intended to use the same fuel also for warming the carriages in winter. The use of ordinary coal gas for cooking and heating has spread rapidly for many years past, but the use of oil gas, of high illuminating power, for this purpose, is at present very unusual, and for railway dining saloons the Midland Company has made the first successful attempt. The running trials have been made some time ago, and the whole arrangements proved quite perfect in every respect the first time the burners were lighted, although they had been designed by Messrs. Fletcher, Russell & Co., from theoretical calculations alone.—(*Warrington Guardian*, 7th June, 1893).

REVIEWS.

Sir Morell Mackenzie, Physician and Operator: a Memoir.
Compiled and Edited, from Private Papers and Personal Reminiscences, by the REV. H. R. HAWES, M.A. London: W. H. Allen & Co., Limited. 1893.

THE advent of this memoir has been well heralded in various ways, but we doubt much if its issue will attain to the 100,000 said to have been accomplished by its predecessor, *Frederick the Noble*. The volume, at least in its present form, should never have been published, and we regret exceedingly that the efforts for its suppression, of which there have been many rumours, have not been successful. The work has been entrusted to a well known *litterateur*, and no fault can be found with the literary execution or style; but the whole tone of the volume is such as to detract from, rather than to exalt, the memory of Sir Morell Mackenzie. Who is really responsible for the appearance of the book we have no means of knowing, but, in our opinion, the person or persons who had the ultimate power of deciding upon its publication were

in no sense loyal friends to the memory of the eminent specialist.

In our issue for November, 1888, we commented upon the publication of *Frederick the Noble*, and we then arrived at the opinion that Sir Morell Mackenzie had seriously suffered in reputation by the course of action he then adopted. A careful perusal of that portion of the present volume (and it forms a very considerable item of the whole) which deals with the illness of the Emperor Frederick has not led us to alter our opinion. Mr. Haweis is a skilful counsel, and he has doubtless had access to all the available material likely in any way to help his case, but he has not succeeded in convincing us that Mackenzie acted either rightly or judiciously in the quarrels that took place around the Emperor's deathbed. We still agree with the *British Medical Journal* in its opinion, formulated at the time when the circumstances were fresh in the public mind, "that, in their conclusion from the clinical appearances, the German physicians were, from the first, right, and Sir Morell Mackenzie was wrong."

No man in the medical profession can afford to neglect the opinion of his professional brethren, or to treat the collective judgment of the profession as if it were of no consequence. Sir Morell Mackenzie seems to have done this, and the result must have been far from agreeable to him. It is a striking feature, too, in the present volume that no medical men of the highest rank seem to have had much to do with him in an intimate or social capacity. Among men of the first rank Sir Spencer Wells is indeed mentioned as one, among several of less fame, who favoured his cause, but after all his support seems to have been half-hearted. Surely also a biographer is ill-off for "copy" when he can devote two or three pages of his memoir to reprinting old testimonials used when applying for a hospital appointment.

When we attempt to seek out a reason for the publication of this somewhat elaborate volume, we have a difficulty in finding one. Were it not for the racy account of the English specialist *versus* the German doctors, the volume would be totally without interest — flat, monotonous, commonplace in the extreme. Apart from this one incident, there does not seem to be anything in Mackenzie's life in the least degree more heroic or wonderful than is to be found in that of many successful medical men in London. That he was a successful man no one can deny. That he was a skilful operator, an arduous worker, and probably the first laryngologist of Europe, is universally admitted. That he made good use of his skill

and his early business training to bring in an income of from £12,000 to £15,000 a year, which seems to have been expended in a somewhat extravagant fashion, may also be acknowledged. But when we know these things, we know all that is to be known—at least of general human interest—concerning the life of Sir Morell Mackenzie, and these are hardly sufficient to justify an elaborate memoir by an eminent author, who, by the way, fills in a good deal about himself.

When we seek for reasons why the volume should have been suppressed, we have no difficulty in finding many. The feelings of the Royal Houses of England and Germany would have been spared the public revival of a bitter private sorrow, the honour of the medical art would have been advanced by allowing disgraceful professional quarrels to sink into oblivion, and the memory of an eminent specialist would have been more revered.

We quote the following paragraph in full as an illustration of the controversial style of the present memoir:—

"It was notorious that the Bismarck faction would have been well content to skip the Emperor Frederick. Had the doctor in favour with that faction operated, Frederick would never have come to the throne; could action of exclusion have been taken when cancer was proven, it would certainly have been taken four days before the old Emperor died; but cancer or no cancer, Prince Frederick could not be excluded constitutionally, and Mackenzie's real crime was that he had stopped *his scientific if not his political assassination, and prolonged his life*. And so the famous Hohenzollern bugbear, as a whip for Mackenzie's back, vanishes finally from the page of history" (p. 196).

Surely professional controversy has sunk to a low depth when it has been found necessary at the present day to print the words "*scientific assassination*" in italics.

Disease in Children: a Manual for Students and Practitioners. By JAMES CARMICHAEL, M.D. Edinburgh and London: Young J. Pentland. 1892.

WE have no hesitation in pronouncing this work to be a first-rate book of its kind, notwithstanding the circumstance that we are inclined to think its literary and practical value not altogether equal throughout. The book does not pretend to be an exhaustive treatise on the diseases of children, and its inclusion in a students' manual series precludes this; but it is

a good students' manual, and is written in a fluent style which must prove attractive.

After three introductory chapters taken up with the methods of prevention, school hygiene, and clinical examination, the subject matter proper of the book begins. All the fevers are discussed in great detail. Next come the infective and general diseases, after which the chapters are devoted to the diseases of special organs and regions. We have indicated our general opinion of the manner in which the author has executed his task; we may also be permitted to indicate one or two points in which we differ from him in opinion, or concerning which we think some improvement might be effected in a future edition. We dislike the term *scrofulosis* intensely; it is an alteration, without any improvement, of an old term; it is pedantic without being definite or precise; and it perpetuates a confusion as to the essential nature of tubercular diseases, and the constitutional tendency thereto, which should no longer exist. If it is desirable to retain this term at all, let us be satisfied with the good old fashioned *scrofula*, which we all understand, and which conveys a precise clinical picture. "The two processes of *scrofulosis* and *tuberculosis*," says the author, "are often mixed up and confounded in medical literature." To perpetuate this confusion, and to give it the imprimatur of a clinical teacher in one of our greatest schools, the author has done much in writing his chapter on *scrofulosis*. What the process of *scrofulosis* is we know not; but so far as we can judge, a *scrofulous* child is a tubercular child. Occasionally the author has not been altogether successful in recollecting that he has not been writing a text-book on general medicine. He has filled in a number of things occasionally, which in a children's book could quite well have been omitted, especially when it has been assumed that we are acquainted with general medicine. We have a good illustration of this in the chapter on the liver. The use of the term *sclerosis* for the more familiar *cirrhosis* is in our opinion bad; but we object more strongly still to the discussion of the minute pathological details of *multilobular* and *monolobular* *cirrhosis* in a special clinical work on children's disease. And of what service is it in a clinical treatise on children's disease to devote a few lines to the varieties of fatty liver? We think that considerable improvement would be effected by leaving all such matters entirely out, and going upon the assumption so well stated in the preface.

We wish the book every success.

The Diseases of Children, Medical and Surgical. By HENRY ASHBY, M.D., and G. A. WRIGHT, F.R.C.S. Eng. Second Edition. London: Longmans, Green & Co. 1892.

IN our issue for September, 1889, we reviewed at some length the first edition of this work. In this review we expressed our high opinion of the value of the book, and gave a general outline of its contents. In dealing with the second edition it is quite unnecessary to go over this ground again. The work has been thoroughly revised, and several of the sections have been entirely rewritten. Forty new woodcuts, most of them original, have been added, and in all respects the volume is thoroughly up to date. Again we heartily commend it to our readers.

A Text-book of the Theory and Practice of Medicine by American Teachers. Edited by WILLIAM PEPPER, M.D., LL.D. In two volumes. Illustrated. Vol. I. Philadelphia: W. B. Saunders. 1893.

THE literature of medicine is now so enormous that it is virtually impossible for any one man to undertake the entire preparation of a large and authoritative text-book on the practice of physic. We have a notable exception to this, no doubt, in the splendid treatise of Hilton Fagge, but this work was the result of many years of labour. The present volume recognises the difficulty that we have just alluded to, and the discussion of the different groups of diseases has been entrusted to different authors. Although this is the case, the book is not in any sense an encyclopædia; and the form of an authoritative text-book, which may be used with advantage by students or practitioners, is preserved throughout. The editor has executed his task well, and the result is that the multiplicity of authorship never obtrudes itself during the perusal of the volume. The different articles are clearly and attractively written, and the various clinical descriptions are lucid and comprehensive. As is fit in a treatise of the kind, the articles are didactic and authoritative, so that but little space has been found for bibliographical lists or references, and special care has been bestowed upon the sections dealing with symptoms, diagnosis, and treatment. In the list of contributors we notice many well known names, from which we may mention those of Billings, Osler, Pepper, Welch, and Wood. We have looked through a number of the articles, and we

have no hesitation in recommending the volume as a reliable text-book. The article on hygiene by Billings is well worthy the most careful perusal, and that on typhoid fever by Pepper is remarkable for its comprehensive scope. The present volume deals with the specific fevers, general diseases, and nervous diseases. It is illustrated by fifty-eight figures and three chromo-lithographic plates, which are for the most part very well executed. The volume is a handsome one, and the publisher is to be congratulated on his part of the work. We trust that the second volume will make its appearance before very long, as in our opinion the separation of the different parts of a large work by long intervals in the period of publication damages its utility very much. We do not think that practitioners will regret adding this new American book to their libraries.

A Treatise on Ruptures. By JONATHAN F. C. H. MACREADY, F.R.C.S. London: Charles Griffin & Co. 1893.

As surgeon to the City of London Truss Society, Mr. Macready has, apart from his other hospital appointments, a claim to speak authoritatively on the subject of hernia. That he has made excellent use of his opportunities the book he has produced abundantly demonstrates.

We may say at once that we regard this treatise as much the most important work on hernia which has appeared in this country of late years. The author treats the subject of ruptures exhaustively, discussing fully, not only the more common forms, but each of the rarer herniæ as well. The facts known as to each variety are clearly stated, and the various theoretical views which have been advanced bearing on these facts are ably and tersely given, and critically discussed in such a manner as to at once establish the author's title to a complete grasp of his subject.

We cannot doubt but that the book will have a large circulation. Over and above the value of its subject matter, it has two additional claims to attention. One of these is the bibliographical list at the end of each chapter in reference to quotations in the text from British, American, and Continental literature. The other is the series of twenty-four lithographed plates illustrating the text. These have been reproduced by Messrs. Danielsson & Co. from photographs, and are of an order of artistic merit and scientific accuracy not often found in recent medical works.

Clinical Lectures on Abdominal Hernia. By WM. H. BENNETT, F.R.C.S. London: Longmans, Green & Co. 1893.

THESE lectures are intended, the author informs us, as an aid to the appreciation of points of practical import in the study of hernia. "I do not suppose," he says in the preface, "that anything can be told of an affection so common as hernia which will be new to persons whose knowledge of the subject is fully matured. I have, nevertheless, ventured upon the publication of the lectures because, when younger in my career, I found it difficult, and sometimes impossible, to obtain from authentic sources precise information upon some of the points which I have endeavoured to discuss."

The lectures quite fulfil Mr. Bennett's intentions, forming, as they do, a most suggestive commentary on the descriptions of hernia in the systematic text-books. The full significance and real importance of facts briefly stated in the larger works are clearly shown, and many subordinate points of interest discussed. The whole series is full of sound practical information given in a most interesting form, and, while by no means constituting a full discussion of the subject of hernia, they are well worthy perusal by both student and surgeon.

Transactions of the Edinburgh Obstetrical Society. Vol. XVII. Edinburgh: Oliver & Boyd. 1892.

THIS volume of the Obstetrical Society's transactions contains many interesting articles both in scientific research and in clinical observations. Among the contributors, Dr. J. W. Ballantyne read a series of papers dealing with fœtal teratology, a subject to which comparatively little attention has hitherto been shown in this country. Dr. Berry Hart writes on the placenta in cases of extra uterine fœtation, and also on the origin of the decidua reflexa. He maintains that the ovum becomes embedded in the *serotina*, and the *reflexa* is merely the superficial portion of the *serotina*. The *serotina* proper is the deep portion. Dr. Felkin contributes to the literature of influenza, with special relation to abortion and menstruation; he considers influenza to be *dengue* modified by climate. Dr. H. M. Church contributes an interesting paper on a case of pulmonary thrombosis occurring during

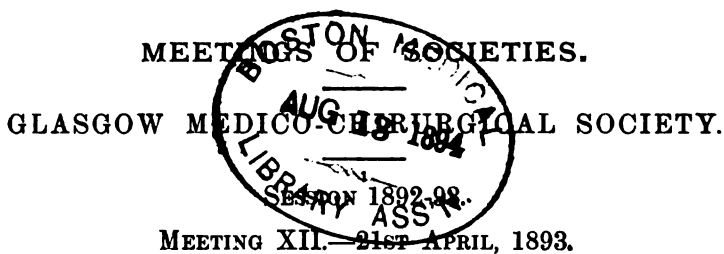
labour. Thrombosis of the pulmonary arteries is in itself rare, and is usually ascribed to the detachment of a clot from a vein in the pelvis, leading to embolism. Such a case as this, where the obstruction came on suddenly before delivery, is difficult of explanation. Dr. Church suggests inhalations of oxygen as likely to prolong life, if not to save it. Several series of abdominal sections are recorded.

La Pratique Gynécologique et Obstétricale des Hôpitaux de Paris. By PROFESSOR LEFERT. Paris: Baillière et Fils. 1893.

THIS little book takes up the subjects of practical gynæcological and obstetric therapeutics in alphabetical order, giving the treatment adopted by various specialists in the several Paris hospitals. For example, under hæmorrhage of the third stage of labour, Charpentier advocates hot intra-uterine douche, with plugging of uterine cavity and compression of aorta in exceptional cases. Auvard's treatment is practically the same, but in *l'hémorrhagie grave et foudroyante* he advocates bimanual compression till some uterine action manifests itself. Bar also advocates plugging of the uterine cavity. For retention of the placenta after abortion, Tarnie and Budin both advise antiseptic expectant treatment; using curette—even finger nail—only if septic infection threaten. This little work is handy for reference, giving in outline the methods of the leading men in Paris.

The Medical Annual and Practitioner's Index. Eleventh Year. Bristol: John Wright & Co. 1893.

WE have pleasure in again calling our readers' attention to the current volume of this very interesting and important publication. In past years we have frequently pointed out its merits as a work of reference for the general practitioner, and the present volume is quite as good as its predecessors.



MEETING XII.—21ST APRIL, 1893.

The President, DR. JOSEPH COATS, in the Chair.

I.—LOCKS OF HAIR PASSED *PER ANUM*, FROM A CASE IN WHICH
A DERMOID CYST HAD RUPTURED INTO THE BOWEL.

BY DR. JARDINE.

Dr. Jardine showed the above as fresh specimens. The patient was a girl, 10 years of age. A year and a half ago she had been very ill, and, according to the history given, a good deal of "matter" had then been passed by the bowel; subsequently she had begun to pass quantities of hair. One lock now shown had been brought to Dr. Jardine about a month before the date of meeting, and more recently he had seen the patient herself, and found a tuft of the size of the little finger projecting at the anus. On pulling this he had found it to be attached, and on introducing his finger he had detected a ragged opening in the mucous membrane of the rectum leading in the direction of the uterine organs. He had been able to feel that the tuft of hair was projecting through this opening. Directions for watching the case had been given, and the second specimen shown was part of this tuft now that it had come away. It would be noticed, on close examination, that there were roots upon the hairs. The hair passed was of a brown colour; the hair on the patient's head was red.

Dr. Jardine supposed there to be a dermoid cyst present, which had opened into the bowel, and was thus discharging; probably the "matter" described as escaping at the first had also been part of its contents. In the region where he had felt the opening there was some thickening, but no definite tumour. The facts he had mentioned about the hair showed that it was not possible that it had been swallowed.

II.—PATIENT ON WHOM THE OPERATION OF TREPHINING FOR CEREBRAL ABSCESS HAD BEEN PERFORMED SUCCESSFULLY.

BY MR. HENRY E. CLARK.

Mr. Clark showed a patient on whom he had successfully operated for abscess of the temporo-sphenoidal lobe. The patient, a lad 18 years of age, had suffered from deafness in both ears for more than twelve months; there had been discharge from the right ear up to within a fortnight of his admission into hospital, but it then ceased. On the cessation of the discharge the deafness grew worse, and frontal headache set in, with dulness of intellect. On 27th January he was seen by Dr. A. G. Faulds, who was called in because he had become unconscious. That gentleman found the temperature subnormal, the breathing stertorous and rapid (52 per minute), pulse slow and soft, pupils equal and of normal size. The patient could not be roused, and was quite insensitive to pain. The doctor diagnosed cerebral abscess, and ordered the removal of the patient to hospital for the purpose of operation. When seen by Mr. Clark, six hours afterwards, he was quite unconscious, breathing rapidly and with very noisy stertor; the right pupil was widely dilated and irresponsive to light; the left was normal in size, but also insensitive. The conjunctival reflex was absent from both. The veins over the right side of the scalp were very much distended, and there was *marked dulness on percussion* of that side of the head as compared with the other. The pulse was almost imperceptible. A sticky, frothy mucus exuded from the nose and mouth. It was evident that without operative interference a fatal issue was certain, and would not be delayed many hours.

No anæsthetic was used, as the patient was too unconscious to feel pain. A horse-shoe flap was turned down from the side of the head immediately above the ear, and a disc of bone removed by an inch trephine, as close down to the upper root of the zygoma as possible. Even before the section through the bone was completed, the disc was pushed outwards by the intra-cranial pressure, and on its removal the dura bulged into the opening. In like manner, when the dura was incised, the brain matter pressed out; it was inflamed, soft, and totally devoid of pulsation. A grooved needle was inserted, and pus was tapped with the first thrust; a knife was then run along the groove, and the abscess cavity freely laid open. About two ounces of fluid and pus were

evacuated, which had a most fetid and offensive smell. The cavity was washed out with weak carbolic solution, and the protruding disorganised brain tissue removed with the scissors. A decalcified bone drain was inserted into the cavity in the brain, and an india-rubber tube passed through the middle of the flap, which was then stitched up. The pus had not been evacuated more than three minutes when a distinct improvement in the breathing was noticed; the pulse became full, and increased in rate; the conjunctival reflex returned; the right pupil contracted to the normal size; and patient's lips assumed a bright, healthy colour. During the stitching of the wound patient manifested signs of pain, and, when the head was turned to the opposite side, he tried to turn it back again. The patient made an uninterrupted recovery. It was noted on the 29th January (the second day after the operation) that he was quite sensible. The temperature generally ranged from 97° to 98·6°, but on the 29th January it reached 101°, the cause for which was found to be imperfect drainage; and on the substitution of a rubber drainage tube for the decalcified bone one, it immediately fell to the normal. A second rise took place on the 13th February, when an attempt was made to dispense with the tube, but on re-inserting it, the temperature at once fell.

Mr. Clark having, in his former case of temporo-sphenoidal abscess, had experience of the liability to reinfection from the septic tympanic cavity, thought it wise, when the patient had completely recovered and the wound healed, to clear out the antrum mastoideum and cavity of the tympanum, and to render them as far as possible aseptic. This was done on 15th March, and the wound is now almost healed.

Mr. Clark claimed that the straightforward diagnosis and immediate operative treatment had undoubtedly saved the patient's life. He pointed out how important had been the venous congestion of the scalp, and the dulness on percussion, as indicating the locality of the abscess, and referred to the ease and certainty with which it had been reached by his trephine opening. As the position of this opening is different from that of other operators, he thinks it may not be unimportant to point out the following advantages it possesses:— (1) It corresponds, as near as possible, to the middle of the temporo-sphenoidal lobe; (2) it is close to the tegmen tympani, and, if desired, an opening can be made through this into the cavity of the tympanum, and drainage effected from the base of the skull instead of from the side; (3) an extension of the posterior limb of the incision permits of the mastoid being

dealt with at the same time; and (4) the bone operated on contains no diploë, and thus the risk of septic absorption is made considerably less.

Dr. J. K. Love stated that Mr. Clark's patient had presented himself at the Royal Infirmary Dispensary twelve days before his admission to the ward, and that he had then been suffering from chronic suppurative inflammation of some months' duration, with perforation and formation of granulations, but without any dead bone being discoverable with the probe. For reasons given, it had not been possible at that time to take an exhaustive report of the case.

Dr. Love then referred to a case in which he had recently operated, in the Royal Infirmary. There had been the same tension, protrusion, and absence of pulsation on removing the disc of bone. They had tried to find pus with the grooved needle in different directions, but without result. The patient had died, but permission for *post-mortem* examination had been refused. *Dr. Love* had heard of Mr. Clark's preference for the situation for trephining he had mentioned; but, though he had been within it, he had encountered diploë, and had had a great deal of bleeding.

Dr. Jas. A. Adams asked Mr. Clark whether he had found any dead bone in the parts around the ear, and whether there had been any extra-dural pus.

Dr. Alex. Robertson spoke of the subnormal temperature and slow pulse as being symptoms of importance in connection with the diagnosis of abscess of the brain, but said that they might be found in connection with middle-ear disease, and associated with other symptoms pointing in some respects to abscess, without an abscess being actually present. He had had an illustration of that in his wards lately, and he thought that in his case there was a gumma at the back of the brain. The symptoms in question were due to pressure, and the pressure did not need to be from pus; all that was necessary was that there should be pressure down on the medulla and the various centres situated there. This should be borne in mind lest too much stress should be given to the symptoms (lowering of temperature and of pulse) in any case where there was discharge from the ears. *Dr. Robertson* had been interested in what Mr. Clark had said about the dulness to percussion in his case, and discussed its connection with tenderness on percussion, and with *Dr. Macewen's* observations on cranial percussion. Fine shades of dulness were difficult of detection, but he considered the sign to be one of great importance. With regard to the site chosen for operation, he

would ask if there was not there a greater risk of piercing the lateral sinus than at the more ordinary situation.

Dr. Thos. Barr would have liked fuller details as to the early stage of the case in its cerebral aspects—as to any vomiting, any localised pains, any rigors, &c.—but these details did not seem to have been available. The case added another to the list of successes which had been recorded for the operation; he thought that in regard to it Glasgow held the lead. He would insist on the importance of examining the ears in all cases in which cerebral symptoms occurred. The medical man might not be informed of the existence of any ear disease, and even though he made enquiries on the point, he might be led astray by incorrect answers. In such cases, if the ear were carefully examined, there would almost certainly be found some foetid pus and perforation of the tympanum.

In regard to the symptomatology of cerebral disease associated with ear disease, *Mr. Clark* had given them a very perfect picture of cerebral abscess in its later stage. Frequently the symptoms were more obscure, as in a case he might refer to. It was that of a woman who had for some years suffered from aural disease, when she became ill with vomiting, intense headache, and hemiplegia. *Dr. Macewen* had trephined, and the brain had been punctured in three or four directions without any pus being found. The disc of bone had been replaced, and after a few days the symptoms had begun to subside, the paralysis had passed off, and in six weeks or two months recovery had been complete.

It was important, *Dr. Barr* said, that such cases as *Mr. Clark's* should be brought to the Society, in order that the profession might be impressed with the gravity of chronic ear disease and its complications, and also with the fact, established by surgeons, that intra-cranial disease may be satisfactorily treated by operation.

Dr. Messer (Helensburgh), after expressing his interest in *Mr. Clark's* communication, mentioned a case of ear-disease which he had had under his care, and in which an operation had been performed abroad, whereby the internal ear had been removed. The patient now felt giddy on turning.

Dr. Walker Downie asked *Mr. Clark* if he had found pus when he opened the mastoid cells. He referred also to a case he had recently had, in which there had been a history of ear discharge for two years. The patient had become seriously ill with rigor, headache, twitchings down one side of the body, and temperature of 106·6°. The discharge had been

found to have ceased, and the antrum mastoideum had been suspected and opened into, but without any pus at first escaping. The probe had then been introduced inwards and backwards, and a small quantity of foetid pus had escaped along it. After some slight improvement the patient had gradually become worse and died. *Post-mortem* they had found extensive necrosis along the upper and inner surface of the mastoid portion, with thrombosis in the lateral sinus, and purulent exudation along the lateral sinus, but no collection of pus.

Dr. Coats drew attention to a pathological fact in connection with suppuration about the brain—namely, that the so-called sub-dural space seemed almost immune. The brain had in this case been cut into and a stinking cavity opened, and there must have been ready passage into the sub-dural space, and yet no inflammatory change had there resulted. The present case was not an isolated instance of this immunity. The sub-dural space was regarded as comparable to the pleura, peritoneum, or a joint cavity, but in this respect at any rate they were widely different. It was fortunate that it was so, otherwise the advances in surgery could not have been so great.

Mr. Clark, in reply, stated that there had been no necrosis around the ear, that there had been no pus in the mastoid cells, and no extra-dural pus. He agreed with *Dr. Robertson* that the lowering of the pulse and temperature was due to intra-cranial pressure, but argued that, when this lowering occurred suddenly in a case with a history of ear disease, it indicated abscess, and called for operation, with, of course, all antiseptic precautions. When there was a high temperature there would be found mastoid implication, or thrombosis and suppuration along the lateral sinus, or meningitis apart from cerebral abscess. The last-named was the condition he suspected in the case narrated by *Dr. Love*, which he (*Mr. Clark*) had seen in consultation. In *Dr. Messer's* case the semicircular canals must have been affected and incompletely removed.

As regards the early history, there had been a feeling that his own case was incomplete, but he could only say that their difficulties in this respect had been insuperable. They had had to put aside most of the statements made by the patient and his friends as unreliable, because of their contradictions. So far as could be ascertained, there had been no vomiting and no rigors. He would agree with *Dr. Barr* that diagnosis is more difficult in the early stage. In both of his (*Mr.*

Clark's) cases the patients had been comatose when first seen, and there was nothing for it but to operate at once; this had been done in both cases with success.

III.—PATIENT FROM CASE OF MICROCEPHALUS IN WHICH LINEAR CRANIOTOMY HAD BEEN PERFORMED.

BY DR. JOHN BARLOW.

Dr. Barlow showed this patient and gave an account of the case and of the operation which appeared as an original article at page 402 of last month's issue.

Mr. Clark said that he had seen the patient before the operation, and had agreed in advising its performance. There was marked synostosis, and in a child of that age that was a feature which indicated that further growth of the brain could not take place. The child's look-out without operation had thus been a very hopeless one. It was perhaps a little disappointing to find so little improvement; improvement there was, but it was not very striking. Probably it would be more evident when the other side had also been done. The hope with the operation was that the person need not grow up an idiot.

Dr. Alex. Robertson had also seen the child before the operation, and had agreed as to the propriety of its being performed. The microcephalic condition was not one which admitted of rigid definition, but this case could certainly be brought under that classification; he was in the habit of seeing microcephalic idiots at Larbert, and the present patient's head was not larger than many of theirs. *Dr. Robertson* could recognise a distinct improvement since the operation. The child was more composed in aspect, its habits had improved, and it could now walk. The case was the first in Scotland that had been operated upon, and he hoped for still greater improvement when the other side had been done; the proposal to connect across the middle line above gave, he thought, all the better promise of success.

Dr. Barlow said that although the result might appear disappointing at first sight, the contrast was quite evident to those who had studied the case before and after operation. He expected more improvement to follow the next operation, if everything went well, though he must say that he approached it with fear, because of the records of death from shock which he had already quoted. The brain in such cases resembled that of a newly born child, and thus stood operations badly.

IV.—PAPER ON "CAISSON DISEASE."

BY MR. H. E. CLARK.

Mr. Clark's paper appears as an original article at p. 17.

Dr. Alex. Robertson referred to a case which he had had some years ago, and which had been named "divers' paralysis." He drew attention to the manner in which the various forms of sensation had been involved in Mr. Clark's case, the point being of importance in relation to the localisation of the lesion in the cord, and being dependent upon the grouping of the nervous fibres.

Dr. Barr asked as to what proportion of cases had been found to have ruptured tympanic membranes.

Dr. Faulds gave some account of Mr. Clark's appearance and of his own sensations while they were on a recent visit to the air-chamber in the subway works. He thought that he had been able to balance the pressure on his tympanic membrane by voluntarily opening his Eustachian tube, and he had suffered little discomfort in connection with his ears. He had had some epistaxis after coming out.

Dr. Dun drew attention to the fact that Italians stood caisson work better than others.

Dr. Barlow thought that it was a good thing that the compression of the air produced an elevation of its temperature. The danger to those who had to work in compressed air was that the increased pressure tended to drive the blood inwards; but hot air acting on the skin would bring about vaso-motor paralysis there, and this would tend to draw the blood outwards, and the above danger be, in part at least, averted.

Dr. George M'Intyre asked how death occurring soon after leaving the caisson, and death occurring under pressure, could both be explained as due to a hæmorrhagic lesion.

Mr. Clark, in reply, stated that a great number of cases had had the ears examined, with the results he had previously mentioned. Italians and Greeks, he said, were specially chosen for the work because of their practice as divers. *Dr. M'Intyre's* question raised a difficult point—how death by compression and by decompression could be caused by the same pathological state. The explanations given were unsatisfactory and incomplete; but it was supposed that when death occurred during decompression it was because of hæmorrhage primarily, whereas, during compression, it was because of an escape of gas from the blood forming a mechanical obstacle to the circulation, and causing hæmorrhage secondarily.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1892-93.

MEETING VI.—13TH MARCH, 1893.

The President, DR. SAMSON GEMMELL, in the Chair.

I.—CASE OF A FEMALE PATIENT WITH SYMPTOMS RESEMBLING THOSE OF HÆMOPHILIA.

BY DR. T. K. DALZIEL.

In showing this case, Dr. Dalziel said that it presented characters which approximated very closely to those seen in male subjects suffering from hæmophilia, although, on account of her sex, that term might be an improper one to use in regard to the present patient. He agreed to the request of the meeting that the case should be brought up again next session for the report and study of any further developments. Further notes as to the history are accordingly meantime withheld.

II.—HÆMOGLOBINURIA WITH *POST-MORTEM* PRESENCE OF BACILLUS OF MALIGNANT ŒDEMA.

BY DR. JOSEPH COATS.

Dr. Coats showed fresh specimens from the case of a woman who had died on the 11th March in Dr. Samson Gemmell's ward in the Western Infirmary; the *post-mortem* examination had been made on the 13th, rather more than forty-eight hours after death. Some urine was shown which had been withdrawn from the bladder during life; its colour was as dark as that of porter, there being a pronounced hæmoglobinuria; no red blood corpuscles could be found in it. Along with this during life, and probably associated with the destruction of the red blood corpuscles, there had been great dyspnoea, which indeed had been the most prominent symptom.

At the *post-mortem* examination it had been found that in every part of the body a bacillus had been planted; this bacillus Dr. Coats took to be that of malignant œdema, and in the most varied situations it had gone on to produce colonies with gas-cavities. The external appearance of the legs had been that of œdema, extending upwards from the toes, but, on handling, the swelling was found to be due to

emphysema, caused by the development of gas. The kidneys (now shown) might be seen to present little pits on the surface, and these also were brought about by gas-cavities produced by the bacillus. A similar condition had been found in the wall of the heart, in the liver, and in the spleen, but the lungs had escaped. On microscopic examination of the various organs it had been seen that each gas-cavity was associated with a colony of the bacillus. Stained sections of the kidney were shown, demonstrating the microbe.

The connection of all this with the condition of the urine was, Dr. Coats said, difficult to discover. The bacillus of malignant œdema was anaërobic, and the presence of the red blood corpuscles usually inhibited its growth during life; but here was a case where the hæmoglobin had been very largely discharged, and perhaps this had given an opportunity for the bacillus of malignant œdema to multiply in the blood during life. The seat of origin seemed to have been in the uterus, the internal surface of which they had found diseased.

There were a number of points in the case requiring much consideration, but one view which might at least be suggested was that the bacillus of malignant œdema had been disseminated in the blood during life, and that after death it had formed the colonies and gas-cavities. In connection with this it should be mentioned that the bacillus was abundantly present in the urine removed during life; it would thus seem to have been not entirely a *post-mortem* growth. The distribution of the colonies in the kidneys also indicated a planting during life, they being situated, to a large extent, in the arteries and glomeruli.

The bacillus present (which, as above noted, Dr. Coats thought to be that of malignant œdema) was a thick short rod with rounded ends; in specimens taken from the urine the characteristic spore-formation had been seen.

III.—SPECIMEN FROM A CASE OF TUMOUR OF THE CEREBELLUM WITH EXTREME HYDROCEPHALUS.

BY MR. CLARK AND DR. J. LINDSAY STEVEN.

Mr. Clark's report:—

“W. K., aged 4 years, was transferred to my care from Dr. Robertson's wards, where he had been under treatment for eighteen weeks. He had been a healthy child up to two years of age, when his abdomen became swollen and hard. The bowels were moved generally twice a day, were often loose, but sometimes formed, and the motions were of good

colour. At the end of the twelve months the abdomen went down, and the child was fairly well, but weakly. About eight months before admission to hospital his head commenced to enlarge, and continued to do so gradually. A fortnight before coming to the Infirmary he had an 'unconscious turn;' he had been sleeping, and when he awoke his mother lifted him, when he became rigid and unconscious in her arms. His eyes were turned upwards, but they did not squint; his face and lips were very pale. He remained unconscious for about an hour and a half. When he regained consciousness he was put to bed, and at once fell asleep; in his sleep his arms were flexed, the fore-arms pronated, and the hands contracted. During the eight months he took great fits of crying, and complained much of the pain in the head; he also lost control of bladder and rectum.

" MEASUREMENTS.

	8th Sept., 1892.	19th Sept.	19th Oct.
Circumference,	21 $\frac{1}{4}$ inches.	21 $\frac{1}{4}$ inches.	21 $\frac{3}{8}$ inches.
Antero-posterior,	13 $\frac{1}{4}$ "	13 $\frac{1}{4}$ "	13 $\frac{5}{8}$ "
Bi-parietal, .	13 $\frac{5}{8}$ "	14 "	14 "

"When admitted to the surgical wards his condition was noted as follows:—Head large, flat at the top, anterior fontanelle of large size, veins of the head much distended, face pale. Child could not sit up unaided, but could move the limbs feebly. Could not understand what was said to him, but took food well, and was free from pain. Passed urine and fæces into the bed. His intelligence was certainly at a very low ebb. The superficial veins of the abdomen were enlarged, and the abdomen itself was turgid; his hands were flexed and fore-arms pronated at all times; he had very little power of grasping.

"Although not a hopeful case for treatment, it was thought that no harm could be done by drawing off some of the fluid, and accordingly, on 1st December, I made an opening at the posterior edge of the anterior fontanelle, and introduced a catgut drain. The drainage proved satisfactory, and it was reported two days after that his intelligence had distinctly improved and the circumference of the head had diminished. As the fluid passed into the antiseptic dressings, it was impossible to estimate with any exactitude the quantity drawn off; but it was evident we had attained what we aimed at—namely, a slow but effective drainage. On the 5th December the child became weaker, and gradually faded out of existence.

"The *post-mortem* examination showed that the drainage opening had done no damage to the brain tissues, and that, beyond a slight venous congestion in the arachnoid, no disturbance had been caused by the operation."

Dr. Steven's report, with description of the specimen:—

"*Post-mortem Summary.*—Hydrocephalus—tubercular tumour of cerebellum—peritonitis.

"*Post-mortem Examination.*—The body is somewhat emaciated, and there is moderate rickety deformity of the ribs and wrists. Rigor mortis is firm, and the pupils are slightly dilated, and equal. The head is very greatly enlarged, evidently from hydrocephalus, and there is a dressing upon the vertex.

"On cutting into the abdomen the intestines are found to be very generally adherent to the abdominal wall, so that there is a difficulty in opening the peritoneal cavity. This has been due to a generalised adhesive peritonitis, and in the anterior abdominal wall, near the left costal margin, there is a yellow caseous nodule the size of a pea. This is the only coarse lesion, which would suggest a tubercular origin for the peritoneal condition. The bowels are in a contracted condition.

"The pericardium contains about a teaspoonful of clear serum. The right side of the heart is engorged with blood, but the organ itself is healthy. The lungs contain very little pigment, and present quite healthy appearances.

"Owing to the generalised adhesions it is necessary to remove the intestine *en masse*. The kidneys are healthy. The liver presents a moderate degree of fatty infiltration, and its upper surface is universally adherent to the diaphragm. The spleen is healthy in appearance, but is likewise embedded in adhesions.

"On removing the dressing from the scalp a puncture is found passing to the interior of the skull, from which, on compressing the bones, clear fluid escapes. On reflection of the *dura mater* a slight effusion of blood beneath the soft membranes in the neighbourhood of this puncture, which passes through the left angle of the anterior fontanelle, is discovered. During removal of the brain a large quantity of cerebro-spinal fluid escapes, but its precise quantity could not be accurately estimated. On dissecting the organ, enormous distension of the lateral ventricles is observed, and a large tumour the size of a hen's egg is found in the left lobe of the cerebellum. The brain is not further examined at present—i. e., 6th December, 1892.

"1st February, 1893.—The tumour in the left lobe of the cerebellum is to-day laid open, and is found to be a typical example of what is called the 'scrofulous tubercle of the brain.' It has a greenish colour, a caseous consistence, and is fairly sharply demarcated from surrounding nervous tissue, in some places appearing as if it could almost be shelled out.

"13th March, 1893.—Microscopic examination of sections, cut by celloidin method and stained with alum-carmine, shows that the bulk of the nodule is composed of granular, amorphous material. At the margin of the caseous material there is a layer of very moderate leucocyte infiltration, in the midst of which are seen occasional ill-defined miliary tubercles and a number of quite characteristic multinucleated giant cells. The microscopic examination leaves no doubt as to the tubercular nature of the tumour.

"The specimen, as exhibited, shows the enormous dilatation of the lateral ventricles, which have been laid open by an incision through the outer margins of the corpus callosum on each side. The remains of the middle portion of the corpus callosum, its posterior margin, and the choroid plexus on either side are observed *in situ*. The upper surface of the left lobe of the cerebellum is seen to bulge upwards, the bulging being caused by the presence of the bulky tumour in this lobe. A triangular portion of the under surface of the left lobe of the cerebellum has been removed in such a manner as to give a good view of the round tubercular nodule situated in its substance.

"The explanation of the hydrocephalus in this case is obvious. The upward pressure of the tumour must have seriously interfered with the free return of blood from the lateral ventricles by means of the veins of Galen and the straight sinus. In view of the *post-mortem* results it is obvious that the ultimate results of surgical interference must be more or less problematical. It is not uncommon to find tubercular tumours in the brain without localising cerebral symptoms."

Further remarks and discussion on this case will be found after Case IV.

IV.—SPECIMEN FROM A CASE IN WHICH A TUMOUR WAS REMOVED BY OPERATION FROM THE CEREBELLUM OF A CHILD WHO SUFFERED FROM HYDROCEPHALUS.

BY DR. PARRY.

Dr. Parry's report appears as an original article on p. 36.

Mr. Clark spoke of the importance of the emissary vein which had caused the unfortunate hæmorrhage in Dr. Parry's case. He remarked also that Dr. Parry had pointed out that cerebellar symptoms were to be expected when a tumour was in the middle lobe. His (Mr. Clark's) case had had no blindness or inco-ordination, and yet in it the middle lobe was involved. Symptoms of pressure on nerves were also absent. He would ask for more light on such cases from the physicians.

Dr. Steven said that in Mr. Clark's case it was the left lobe of the cerebellum that was most distinctly affected.

Dr. Workman said that although the tumour in question involved the left lobe, it also pushed the middle lobe to the right, and interfered with it as much as with the left, yet there had been no cerebellar symptoms. With those slow-growing tubercular tumours, the functions of an organ such as the cerebellum were very little interfered with, the organ being merely pushed to the side and its work going on. The cause of the blindness in Dr. Parry's case had been, in Dr. Workman's opinion, the presence of a tumour within the skull; a tumour anywhere in the skull could produce atrophy of the optic nerve. A case like Dr. Parry's was certain to die if left alone, and, although there seemed but little chance of operative treatment being successful, he (Dr. Workman) saw no objection to its being tried.

Dr. R. M. Buchanan considered that Dr. Parry was to be congratulated on the manner in which he had arrived at his diagnosis, and on his courage in operating. He had been struck with what had been said about the middle lobe of the cerebellum and inco-ordination. In a case he had seen recently (Dr. Parker's, p. 181, vol. i, 1893, *Glasgow Medical Journal*), there had been a tumour replacing the middle lobe, and there had not been inco-ordination of such an amount as one would have expected if the middle lobe were involved in the function of co-ordination.

Dr. Workman had spoken hopelessly of operation in such cases, but he (Dr. Buchanan) could not agree with him. He referred to the fact that cystic tumours in the brains of animals were frequently tapped successfully, *e. g.*, by shepherds for "staggers," where the removal of pressure, by the withdrawal of the fluid, must be at least part explanation of the beneficial result.

Dr. Finlayson protested against any analogy being drawn between these operations on parasitic cysts, and operation on scrofulous tumours in the brains of children. The fluid in the former case was removed, just as in hydatid of the liver,

so as to allow of the death of the parasite, and the disease then terminated without the tumour being dissected out. A scrofulous tumour in the brain was a very unfavourable one to attempt to remove, and it was important to bear in mind that the great bulk of the tumours in the brains of children were of that variety, and that they were often multiple. To attempt to remove such a tumour was a much more serious matter even than evacuating an abscess in the brain, because the latter also was a thing which they could conceive of as resulting in a cure. Several such cases had been cured. There were great differences in the characters of abscesses, some looking very unfavourable because of the disintegration around the pus, while others looked more favourable.

With regard to what had been said about physicians and diagnosis, he must ask for "notice of the question," but would agree in the main with the statements made by Dr. Parry, with whom he used to work in the Sick Children's Hospital. Blindness was often caused by cerebellar disease, but simply to say that the patient could "see pretty well" did not in any sense exclude a diagnosis of cerebellar tumour.

Dr. Dalziel raised a point with regard to the possibility of removing the tumour in such a case as Dr. Parry's. The only distinctly localising symptom had been the distension of the veins, but whenever a tumour in the cerebellum came to be of sufficient size to cause this symptom, it must be so large that one could not hope to operate successfully. This was the more readily to be understood if one studied such cases in the *post-mortem* room, as it might there be seen how the tumour tissue blended with the surroundings; even in the *post-mortem* room it was often difficult to say where the tumour ended. If one could localise a tumour of this kind before it was of sufficient size to cause the distension of veins, there would be more hope. Tumours had been successfully removed from the motor area of the cortex, but they were of the size of a hazel-nut.

Mr. Maylard said that the surgeons wished to know whether there were any of the tumours under discussion upon which they might operate with hope of success, and he thought it was for the pathologists to answer the question. They had heard from Dr. Parry how, in his *post-mortem* room experience, he had been able to shell out such tumours, and how this had helped him in forming his opinion as to operating. The hæmorrhage in the case had been an unfortunate accident, but was not likely to occur on any future occasion. If the physicians would localise the tumours, he

thought the surgeons would be found prepared to remove them.

Mr. Maylard submitted statistics with regard to cerebellar tumours from the *Annual of the Universal Medical Sciences*, 1890, 1892.

Dr. Lindsay Steven spoke with regard to the question of operating in cases of cerebral and cerebellar tumours. His experience had taught him (1) that very frequently tubercular tumours of the brain were multiple, and thus any hope of curing the patient by cutting down upon one of them, which had presented localising symptoms, was remote; and (2) that with many of the tubercular tumours of the brain localising symptoms were absent, and there were no further signs than from general tuberculosis. Then, with regard to glioma, he would direct attention to the specimens shown as card specimens (*cf. infra*). Though there had been localising symptoms, one could have had no idea (during life) how far those tumours had extended, and similar uncertainty would hold for the cerebellum as for the cerebrum. His feeling was against operating on the "off-chance" of success.

Dr. Middleton referred to the case from which he had shown specimens at the Society's meeting on 12th December, 1892. He stated that in most of the cases he had had at the Sick Children's Hospital the tumours had been gliomatous.

Dr. Dalziel asked Dr. Parry if the portion he had described as having shelled out (from one of the brains he had examined) contained the whole of the tumour, or if it was merely the caseated centre.

Dr. Workman said that in cases which thus shelled out he had found tubercular bacilli in abundance in the apparently healthy surrounding part.

Dr. Coats's experience of brain tumours had been mostly in connection with *post-mortems* on adults, but so far as it went it agreed with Dr. Finlayson's statement about the preponderance of tubercular tumours. He had found tubercular tumours of the brain more frequent than all others taken together. He was not so sure, however, that that was an absolute argument against operating, for he had seen a number of cases which were not multiple, and he did not see why one should not operate as successfully here as upon a tubercular joint.

Dr. Parry, in reply, said that when multiple tumours were found in the brain that was because the case was seen at a late stage, the additional tumours being secondary. Thus, one could not judge from a *post-mortem* examination made months

after brain-tumour had been diagnosed. He had had twenty *post-mortem* examinations upon such cases at the Sick Children's Hospital, and very few of them showed multiple tumours. To make a satisfactory diagnosis in the class of cases under discussion it was necessary to live among the children, and to note what might appear the most trivial changes in their manner and general behaviour.

The operation he had performed in this case, if it had had no other result, would have relieved pressure and allowed any further growth to have taken place outwards: the pressure on the straight sinus would thus have been reduced, and the hydrocephalus influenced beneficially; headache would also have been relieved.

V.—LARGE GALL-STONE PASSED *PER RECTUM*.

DR. GEORGE MARSHALL.

Dr. Marshall gave the following account of the case from which his specimen had been obtained:—

"T. S. D., aged 59 years, was first seen by me in November, 1891, when he was suffering from a very acute attack of influenza. On physical examination at that time, it was noted that his liver was considerably enlarged, and that his conjunctivæ and skin were distinctly yellow in colour.

"He again consulted me on 11th January, 1892, when he complained of 'getting very stout,' and that he could not get his clothes to button round him. I again found the liver dulness much enlarged, measuring in the nipple line $7\frac{1}{2}$ inches. Over the region of the gall-bladder there could be felt a pear-shaped swelling, projecting about 2 inches below the lower margin of the liver. Part of this swelling was hard, and on pressing on it patient complained of pain. The other organs in the abdominal cavity appeared normal. There were, however, very distinct signs of ascitic fluid. His conjunctivæ and skin were still yellow. The urine contained bile, but no albumen or tube casts, and it was passed in fair quantity. The bowels were constipated, the motions being pale.

"Patient gave a history of previous good health, but said that for about twenty years he had been subject to very frequent 'bilious attacks.'

"I ordered him to keep his bed, dieted him, and gave as medicine 'Imperial drink.' In about ten days he was better, and returned to work.

"I saw nothing more of him till the 15th August, 1892, when he came to me complaining of loss of flesh and great

weakness. He further stated that in the month of May or June his eyesight had become so bad that he had to give up business, as he could not see ordinary type. In July, when at the coast, he had had a very severe attack of abdominal pain which had lasted for about fourteen hours. For some time after this his urine had been very dark in colour, and his eyes and skin quite yellow. He had never had pain like this before.

"The results of examination were pretty much as before. The pear-shaped swelling was more distinctly felt. He said that it seemed to vary in size; when it was large he felt 'bad,' and when it became smaller he got relief. It changed its position when he moved in bed. The bowels were very much constipated, the motions being very pale. The urine contained bile, but no albumen or tube-casts. The temperature was normal, and the pulse steady and regular, 65 per minute; the conjunctivæ and skin were yellow. Flatulence was, at times, very troublesome, but the appetite remained very good.

"At this time the diagnosis of gall-stones was made (most probably one stone) and operation strongly advised. To this, however, the friends would not consent.

"The treatment followed was rest in bed, good regular diet, the frequent use of saline aperients, and drinking regularly, three times daily, about one pint of hot water. He also took for some time a mixture of iodide of potash and chloride of ammonia, and an ointment of the proto-iodide of mercury (ten grains to the ounce) was rubbed over the region of the liver twice a day till the gums became tender, when it was discontinued.

"At the end of December I have it noted that 'his conjunctivæ and skin are free from staining; there is no bile in his urine, and his motions are now dark in colour. Liver dulness measures 6 inches. Pear-shaped tumour much softer.'

"On Sunday, 30th January, 1893, when in bed, he was seized with most violent pain all over his abdomen, but more especially at the left side. It came on in frightful spasms. Within four hours I twice gave him one-third of a grain morphia hypodermically, but with very little relief. About 8 P.M. he vomited a large quantity of dirty greenish-coloured fluid, and for a time the pain abated. In about an hour it returned again (vomiting continued), and lasted till 6 A.M. 31st January, when it suddenly ceased. His urine was now very dark in colour. I ordered large enemata of soap, castor oil, and water to be given, and the motions to be carefully examined. After the second enema was given, the calculus

shown was expelled. It weighed 4 drs. 3 grs (= 243 grs.), and measured $1\frac{1}{2}$ inch long and $3\frac{1}{4}$ inches in circumference at its thickest part.

"After this patient made a good recovery, and is now able to go about. He is increasing in weight, and, but for slight rheumatic pains, says he has never felt better. His eyesight has almost quite recovered."

Dr. Finlayson would judge from the size of the stone that it must have ulcerated through.

Mr. Clark referred to his case which is published in the *Society's Transactions*, vol. iii, p. 65.

In reply to the *President*, *Dr. Marshall* added that he had found cholesterine on testing the most superficial layer of the calculus, and that he did not think that its size had been appreciably increased by the deposit on it of fæcal matter.

VI.—CARD SPECIMENS.

BY DR. J. LINDSAY STEVEN.

1. A tumour of the right cerebral hemisphere, in the region of the gyrus fornicatus, resting on the corpus callosum, and impinging on the left cerebral hemisphere.

2. Glio-sarcoma of the brain originating in connection with the posterior extremity of the corpus callosum.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1892-93.

MEETING VI.—26TH APRIL, 1893.

The President, DR. POLLOK, in the Chair.

I.—SPECIMEN FROM A CASE OF PLACENTA PRÆVIA.

BY DR. M. CAMERON.

Dr. M. Cameron showed a placenta from a case of placenta prævia which he had had that evening. He had turned and delivered the child through the placenta.

II.—DISCUSSION ON THE TREATMENT OF FIBROID TUMOURS OF THE UTERUS.

Dr. Cameron, in opening the discussion, said that for some time opinions had been divided between electrolysis and operation. He had given electrolysis a fair trial both in private and hospital work. The cases it did most good in were not fibroids at all, but merely indurations round the uterus. In the true myoma the curative action was very small. As a styptic the action was undoubtedly good, and he believed the electricity also acted as a tonic to the whole system. In weak patients this action was very useful in strengthening them so that they might be able to undergo an operation. He described the three varieties of fibroids, submucous, interstitial, and subserous. In the subserous, pressure symptoms often made an operation necessary. He was against removing the uterus along with the tumour, as he believed the results in these cases were far more unsatisfactory than statistics would lead one to anticipate. In the interstitial variety hæmorrhage was what we had most frequently to deal with. In these cases electrolysis was useful as a styptic and tonic, and if that, along with the use of ergotin, did not check it, the best operation was to remove the ovaries and as much of the tubes as possible. If, on making an exploratory incision, he found the ovaries and tubes very adherent, he preferred leaving them alone. The submucous ones were sometimes very puzzling. If they were about the size of an orange, they were usually attached to the cervix, and were easily diagnosed. If larger, and blocking the vagina, it was very difficult to distinguish them from the inverted uterus. If you could rotate the tumour in the vagina, you could be sure it was a fibroid, and not the uterus. He had been able to diagnose one in that way.

The submucous and subserous sometimes degenerated. One he had shown at the beginning of the meeting was quite calcified in parts. He had removed it by abdominal section with great difficulty. He instanced one case in which there had been forty-seven applications of electricity, with the result that the tumour had sloughed, and the woman was very ill with septicæmia. The operation of removal seemed almost hopeless, but she wished it done, and he had managed to remove it bit by bit by the vagina. She was very low, but made a wonderfully good recovery, and was now in

good health. In another case the foul discharge had led to the diagnosis of cancer. He dilated the cervix, and removed it by the vagina at three sittings. She made a good recovery.

Ergotin he had found a very useful drug in checking hæmorrhage. Pot. brom. had been extolled as useful, but he could not speak in its favour.

Dr. Stark said that the treatment often depended upon the social position of the patient. If a woman could rest at her periods, she usually got on well enough with the use of ergot, &c., but, in the case of a poor woman who could not do this, operation had more frequently to be resorted to. He knew of many cases getting on comfortably with care. One case he had known of where the tumour was small and giving very little trouble, but she had consulted another medical man, who advised and performed an operation which proved fatal. One case of his own, in which there had been a fibroid for twenty years, was now quite free from it, as it had disappeared at the menopause. The rate of growth should be carefully watched. He showed a large tumour, weighing $2\frac{1}{4}$ lb., which he had removed by the vagina. It had existed for fourteen years, but had only given trouble for a few months from profuse menstruation. It had completely filled the vagina, but he had managed to pass an ecraseur wire round the pedicle.

Dr. H. St. Clair Grey said that in the red or soft variety the hæmorrhage usually persisted, while the white or hard decreased at the menopause. A great deal could be done in controlling the bleeding by giving ergot in large doses for a long time. Hamamelis he had tried, but had not found it so good as ergot. Cauterising was also of use. The knife should only be resorted to after a fair trial of medicines. He believed the operations would be more successful if we could treat the stump intra-peritoneally.

Dr. Cullen said great patience was required in the treatment. He had never seen any good from electrolysis. He could not see how it acted as a tonic, as its application always caused more or less shock to the system. Ergot he did not think could safely be used for a long time. He had usually found the hæmorrhage return more profusely after its use.

Dr. Tod related a case in which menorrhagia had been profuse for seven years. Under ergot she rapidly improved in health and gained flesh. He thought it was much better not to operate, except as a last resort.

Dr. Richmond believed strongly in ergot given freely, and for a long time.

Dr. Brown related a case he had seen in consultation, where a large tumour obstructed delivery. A dead child was delivered with great difficulty, and the mother died twelve hours later. At the *post-mortem* the tumour was found to be attached to the lower posterior part of the uterus, and it overtopped the fundus. There was no history of any previous trouble from the tumour. The tumour and uterus were now in the Royal Infirmary Museum.

Dr. Pollok said he would have liked to have heard some statistics as to the mortality of operations. He had seen many cases, but had never advised operation. He believed in ergotin for checking hæmorrhage, and would not advise operation unless life were threatened.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By HENRY RUTHERFURD, M.B.

Trephining in Epilepsy.—Fränkel calls attention to certain limitations which exist to operative procedures on the skull and brain. Speaking only of those cases in which a definite cortical lesion has been diagnosed, he points out—

1. That any excision of brain tissue must result in a cicatrix, which will drag on surrounding brain tissue.

2. That replaced discs of bone always unite firmly with the dura when they live.

3. That though the initial symptom may be well enough marked, and localised on the cortex, the primary lesion cannot continue long in existence without producing in adjoining motor areas a condition of hyper-excitability, itself constituting disease, and which removal of the primary centre is powerless to remedy.

He suggests the use of some indifferent material, such as celloidin, to replace portions of brain tissue removed, and to prevent adhesions between bone and dura, and with regard to 3, calls attention to the necessity of early operation, whether on the brain or on any peripheral cause of irritation.—(Fränkel of Vienna, in the *Billroth Festschrift*.)

Intracranial Neurectomy of the Fifth Nerve.—Hartley of New York reports 5 successful cases in which portions of the second and third divisions have been excised between the Gasserian ganglion and their foramina of exit from the skull. One is by himself, two by M'Burney, and one by Roberts. One has been already reported by Krause (*Arch. für Klin. Chir.*, October,

1892), in which the second division was dealt with by a similar procedure, but Hartley's operation was done six months before Krause's.

A horse shoe incision is made over the temporal region, the outer table chiselled through, and the whole thickness of the skull divided at the upper part, for the introduction of an elevator by which the whole flap of bone is prized up, and turned down with the investing soft parts. The middle meningeal or any bleeding branches are dealt with as may be necessary. The dura mater is then separated from the floor of the middle fossa, and with the unexposed temporo-sphenoidal lobe held upwards with a flat retractor. The second and third divisions are seen passing out from the dura mater (or from that part which invests the Gasserian ganglion to the foramen rotundum and foramen ovale. They are divided at the foramina and caught with forceps. The stumps may then be resected close to the investing layer (outer wall of the *cavum Meckelii*), or used as a guide to the *cavum Meckelii* which may be opened, and the ganglion torn or spooned out. (This does not seem to have been done in any of the cases reported.)

In the author's case the time occupied in the operation was one hour and forty minutes. "In the retraction of the dura mater owing to imperfect instruments, the third, fourth, and sixth nerves were somewhat injured. As there was no bleeding, the brain was allowed to fill the fossa." Periosteum muscle and skin were sutured, one drainage tube at lower angle of skin wound.

Fourteen months later patient had gained in weight 16 lbs., and was entirely free from pain.

In Krause's case, on account of the hæmorrhage which occurred during the separation of the dura from the bone, the cavity was packed with iodoform gauze. Five days later this was removed, and a portion of the second division resected. The cavity had again to be packed. A few days later the packing was removed and the parts coapted.—(*Annals of Surgery*, May, 1893.)

The Reflexes in Spinal Injuries. Thorburn.—Bastian (*Med.-Chir. Trans.*, 1890) has formulated the following conclusions with reference to spinal lesions in man :—

1. That in total transverse lesions of the cord, both the superficial and deep reflexes are permanently and entirely abolished.
2. That it is only in partial lesions that we find retention or exaggeration of these reflexes.
3. That the abolition of the reflexes is a result of isolation of the spinal centres from their cerebellar connections.

These conclusions, says Thorburn (*Trans. Path. Soc. of Manchester*, vol. i), are not in accordance with the results obtained by experiment upon animals, nor with what was believed to have been accurate observations on the human subject, the generally accepted view being "that in total transverse lesions . . . the superficial and deep reflexes localised below the level of the lesion were at first abolished, but that they subsequently returned, generally in an exaggerated form." The acceptance of this view had, so long ago as 1887, led Thorburn to report some striking exceptions, for which he felt obliged to suggest various explanations.

An analysis of Thorburn's already recorded cases (*Contributions to the Surgery of the Spinal Cord*), in his opinion, enables him to substantiate Bastian's propositions, thus—

"1. Shock is not the cause of early loss of reflexes in spinal injuries, as such shock is practically just as great in cases in which these are retained as in those in which they are lost.

"2. Where the lesion causes complete paralysis and anæsthesia, the deep reflexes are always lost.

"3. When motor or sensory power (or both) return, in even a slight degree, these reflexes also return.

"4. When no such recovery occurs, the deep reflexes remain absent for periods of practically in definite duration.

"5. When the lesion does not cause complete paralysis or anæsthesia, the deep reflexes remain in either a normal or an exaggerated form.

"6. But if the motor or sensory symptoms afterwards become complete, such reflexes disappear.

"7. The superficial reflexes, however, do not conform absolutely to these rules. In nearly all cases, both of complete and partial lesions, these disappear and remain absent, the 'plantar reflex' only existing. The latter is obtained in many cases of complete and partial lesions.

... "We are justified in proceeding upon the assumption that loss of the deep reflexes implies total destruction of the spinal cord. The importance of this conclusion from the point of view of prognosis and operative treatment is obvious." ...

In reference to the visceral reflexes concerned in micturition and defecation, Thorburn contends that the rule laid down for the deep reflexes holds good also. For his analysis of the symptoms connected with these functions, the original article must be referred to.—(*Trans. Path. Soc. of Manchester*, vol. i.)

Celluloid used to Repair Losses of Cranial Bone.—Weinlechner showed to the Medical Society of Vienna a man who had, in consequence of fracture of the skull, lost a considerable portion of one parietal bone. This was replaced by celluloid, and the cure proved to be complete, not even psychical disturbances following.

At the same meeting, Eiselsberg gave an account of two patients whom he had treated in a similar fashion. In the one case the wound healed forthwith; in the other he had to remove the celluloid, owing to the development of a hæmatoma. He replaced it, however, after eighteen days, and then healing occurred.—(*La Riforma Medica*, 4th January, 1893.)—T. K. M.

The Contagiousness of Erysipelas.—A remarkable instance of transmission of erysipelas through a succession of patients, all young healthy men, is given by Assistant-Surgeon Walter Reid, U.S. Army, in the *Boston Medical and Surgical Journal* for 10th March, 1892.

The first case, which could not be traced to any source of infection, was facial erysipelas in Lieut. B. Private A. nursed him, and, about twenty days after the onset of B.'s case, Private A. received a slight wound in the face, which was followed next day by erysipelas. He was nursed in another room by Hospital Attendant K., who took facial erysipelas three weeks later. A. and K. continued in the same room, and Private S. nursed them. Before K. was convalescent S. was seized. He was placed in a separate room, and nursed by Acting Hospital Steward G. Three weeks later G. was also attacked, and narrowly escaped with his life. He was nursed by four men, who took short turns of duty, and no other cases occurred.—D. M'P.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Hysterectomy for Puerperal Metritis.—Dr. Goldsborough of Cambridge, Maryland, reports in the *New York Medical Journal* for February, 1893, a case where this operation was performed by Dr. Kelly. The patient was a healthy primipara, 34 years of age, who was confined normally in December, 1891. Seventy-two hours after labour she had a severe rigor, and when seen a few hours later she had a temperature of 104·5 with a pulse of 120, and had an anxious pinched expression. Lochia scanty and foul; uterus tender. She was immediately treated by intra-uterine douche of carbolised fluid, and by the exhibition of large doses of quinine, phenacetin, and a calomel purge, with the application of poultices to the abdomen. The next

(or fourth) day the patient was manifestly worse, and on specular examination a diphtheritic exudation was found covering the cervix, extending down the vagina and involving the labia; this exudation could not be detached *en masse*, but broke off, leaving a bleeding surface; it was, however, removed by the application of peroxide of hydrogen, which was used in the uterus as well as in the vagina. The patient's temperature was now 105, and she seemed to be approaching collapse, and had now developed a septic pleurisy.

On the fifth day the abdomen was opened, and the uterus large, softish, putty-like, and deeply injected, was lifted out of the wound, and an elastic ligature was immediately thrown round its cervical end, and the uterus with the ovaries and tubes were at once cut away above the ligature. Extreme care was taken to prevent any fluid from the uterus escaping into the abdomen. The stump of the cervix was thoroughly burned out with a Paquelin cauter, and then sewed together in two layers—a lower of buried sutures and an upper of “symperitoneal” silk sutures; this stump was then suspended in the lower angle between the lips of the incision, where the parietal peritoneum on all sides was attached to the peritoneum of the stump, thus secluding it from the abdominal cavity, closed down to the stump without drainage, and avoiding the more dangerous method of leaving the constricting ligature on the stump to slough off late. The symperitoneal sutures were left long for the purpose of suspending the stump, and avoiding a tendency to drag back into the abdomen. A small opening was left in the lower angle of the skin wound leading down to the stump, and was packed with iodoform gauze. There was no peritonitis, and there were no adhesions; the right ligament was distended by bright red cords, looking like lymph vessels, as large as the little finger. Both ovaries were swollen, the uterus was large and everywhere infiltrated, containing necrotic areas in its substance where the muscular tissue was disintegrated. Throughout the operation the distended intestines caused much embarrassment.

Immediately after the operation there was a marked improvement in the patient's condition. The temperature became normal within an hour, and the pulse fell to 120. The pulse varied from 120 to 130 for three days, and the temperature from 100° to 102.5°.

Subsequently there was no vomiting, no tympany, and no pain; there were no chills until five days after operation, when a stitch-hole abscess formed with severe pain and elevation of pulse and temperature; this abscess discharged on the eighth day with relief of the symptoms. The abdominal stitches were now all removed. Here recovery was interrupted by an attack of phlebitis beginning in the left ankle, extending up to the body and involving the right leg on the following day. In three or four weeks the suspensory ligature came away, and without any further drawbacks she recovered complete health and resumed her household duties in four months. A small abscess formed later in the abdominal cavity, but healed. A year after operation she was in the best of health. Dr. Goldsborough publishes this case under the conviction that a certain percentage of cases of “puerperal fever,” tending to run a fatal course, could be saved by a timely radical operation, by attacking *per abdomen* a septic focus which cannot be reached *per vaginam*.

The Treatment of Puerperal Infection.—Dr. Foster Scott (*New York Medical Journal*, February, 1893) contributes an article in which he describes the methods he adopts in the treatment of patients where the case, in the absence of any other malcondition, is characterised by elevated temperature, rigors, and offensive lochia. He maintains that the intra-uterine douche, as ordinarily given, is inadequate. It is generally considered sufficient to allow a gentle current of corrosive sublimate solution to flow into the uterine cavity; but this positively will not separate any adherent shreds, and its germicidal action cannot by any chance penetrate into the thick, fleshy masses of *débris* which will remain. His method is as follows:—The patient's buttocks are held in position over the edge of the bed, and the vagina opened up with a trivalve speculum and thoroughly washed out with some antiseptic

solution—*e. g.*, Lysol, 1 to 100. Then he performs what he terms a *soft curetting* of the cavity of the uterus by swabbing it out gently by means of a twist of cotton, saturated in peroxide of hydrogen, on an applicator. He uses the 15 volume solution, pure as it comes in the original bottles. [In this country it is sold at the strength of 10, 20, and 30 volumes: Martindale & Westcott]. The applicator, armed with a fairly large twist of cotton soaked in the solution, is passed up to the fundus, and is allowed to remain for a minute or so. It is then removed, and this proceeding repeated several times over. It intelligently attacks every shred of necrotic tissue, leaving no island untouched, while it is absolutely nontoxic to vital tissues. When he has satisfied himself that every part has been reached, and all devitalised tissue loosened up, he then irrigates the uterine cavity with corrosive sublimate solution, 1 in 5,000, at a temperature of 110° F. This washes away all froth and loosened *débris*, and makes assurance doubly sure that you have the genital tract as clean and aseptic as it is expedient to attempt. In some cases a mercuric, or iodoform or sterilised gauze packing up to the fundus is indicated. This is better than an iodoform pessary introduced into the cavity of the uterus, as it acts as a drain. Ordinarily it is sufficient to blow into the vagina, by an insufflator, a powder composed of seven parts of boric acid to one of iodoform or aristol.

Dr. Scott considers this peroxide of hydrogen by far the most valuable therapeutic agent which has been placed before us in recent times. He much prefers the method described to any application of the curette in puerperal cases. His method is one within reach of every practitioner; it may be done every second day or so, while the single intra-uterine douche may be used once or twice daily. He combines this, with general tonic and antipyretic treatment, with alcoholised sponging and ice-bags over the uterus.

Amputation of the Gravid Uterus and Appendages.—Dr. G. R. Fernandes (Adolpho & Co., Lisbon, 1892) reported a successful case of Porro's operation to the Lisbon Society of Medical Sciences, in February, 1892. The case was that of a lady of 35 years of age. Ten years previously she had had a premature labour, but had otherwise enjoyed good health. Dr. Fernandes saw the patient early in pregnancy suffering from retention of urine from the presence of a large tumour in the vagina. Abdominal palpation revealed the presence of several abdominal myomata, and the diagnosis of pregnancy was doubted. It was not till some months subsequently that the fetal heart made the diagnosis certain, as the myoma in the vagina prevented the examining finger from reaching the cervix. Porro's operation was selected as giving mother and fetus the best chance of life. Unfortunately, when labour came on, the umbilical cord prolapsed, and the fetus died before the operation was commenced.

The abdomen was opened, and the uterus with its large myomata turned out; and very fortunately the tumour, which had been felt *per vaginam*, and which was supposed to be in the substance of the cervix, was now found to be growing from the body of the uterus. An elastic ligature was placed round the cervix, and the broad ligaments were sutured in sections with catgut. The uterus was then cut away six centimetres from the elastic ligatures. [The author does not say whether above or below; the elastic ligature was, in any case, not left in the abdomen.] The incisions were made in such a way as to leave a conical stump, which was then seared with the thermo-cautery. Deep and superficial catgut sutures were put in, and the stump, well covered by its peritoneum, was returned to the abdominal cavity. The temperature was somewhat elevated for a day or two, but the patient was up on the fourteenth day. There was some suppuration from the abdominal stitches, attributed to the non-sterilising of the silk by repeated boiling in sublimate solution and soaking in carbolic acid. The patient made a complete and otherwise uninterrupted recovery, and Dr. Fernandes is to be congratulated on the success of the first operation of the sort in Lisbon.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Ophthalmia Nodosa is the name given to a group of cases by Professor Schemisch, of Bonn. Several such cases were lately reported in *Knapp's Archives* by Dr. Krüger. In each there was intense pain with deep circum-corneal injection and all the symptoms of irido-cyclitis. In all these cases multiple small nodules were found on the iris, the sclera, and in the conjunctiva.

Microscopic examination showed them to be due to the insertion of caterpillar hairs in the tissues of the eye. In two cases the hairs were those of *gastropacha rubi*, and in this connection Krüger remarks that their hairs, penetrating the epidermis, cause itching, erythema, and urticaria.

Retinitis Proliferans.—In the last number of *Knapp's Archives*, Schultze describes two cases of retinitis proliferans which have come under his observation. He quotes a large number of cases seen by other observers, and makes the remark that "in all these cases there were vitreous and retinal hæmorrhages, or remains of them, and to these must be attributed the chief rôle in the development of the affection." In other words, Schultze has come to the conclusion that in retinitis proliferans we have to deal largely with a fibrinous exudation and an atrophied retina. To the ophthalmoscope the glistening white deposits are very similar to what is seen sometimes after injury to the eyeball.

Curiously enough, in the very same journal Banholzer describes a case of retinitis proliferans following an injury to the eyeball.

Forster's Type of Contraction of the Visual Field. (*Knapp's Archives*, April, 1893).—By Förster's type of contraction is meant that form of it in which the test object is seen farther towards the periphery when the object is brought from the periphery to the centre than when it is brought from the centre towards the periphery. König tries to prove, by reference to a series of cases, that this type is also present in traumatic neurosis. This contraction sometimes appears in an eye after injury to the other.

Antiseptics in Ophthalmic Practice.—At a recent meeting of the French Ophthalmological Society, there was a long discussion on antiseptics in ophthalmic practice, which was opened by an interesting paper by Nuel, of Liege. In the first place, there are certain conditions which modify or even destroy the germicidal properties even of such a substance as mercuric chloride. Thus, the presence of an alkaline reaction in any of the fluids of the body greatly lessens its power; on the other hand, albumenoids, such as mucine and gelatine, to a large extent protect the microbes from the action of any antiseptic. Fatty substances have the same effect, and hence antiseptics dissolved in oil almost completely lose their utility. Again, in certain cases the very application of an antiseptic to the wound or to the conjunctiva causes, by irritation, a hypersecretion which greatly favours the multiplication of germs. Hence, Nuel concludes that absolute asepsis cannot be obtained by means of chemical agents alone.

It is, however, satisfactory to note that the two chief micro-organisms which we have to dread in ophthalmic work—the yellow and white staphylococcus—have little resisting power.

To a great extent we are assisted by the aseptic properties of the tissues and humours themselves. Thus, in the tissues, there is a process of phagocytosis, while the tears and aqueous humour have a directly chemical germicidal action. Thus, if the number of germs present does not exceed the capabilities of the tissues, the wound must heal as if completely aseptic. To a large extent

the powers of the tissues are conditional and limited by the constitutional state of the patient.

In the second place, although the cleansing of the whole body with soap and water is advisable, yet special attention must be directed to the eye itself, all grease must be carefully removed from the skin of the eyelids and surrounding parts, for the presence of fatty matters prevents the germicide acting; this is best done with soap some time before the operation, and afterwards the parts must be repeatedly bathed with an antiseptic solution. Nuel advocates the use of a solution of bichloride, 1 to 2,000. Even in strength of 1 to 5,000 it is very active. There are other substances which give equally good results. Whatever antiseptic is employed it should be used for several days before the operation.

From the commencement of the operation, the sublimate solution must not be used, but it should be replaced by a solution of sodium chloride or of boracic acid.

Again, the lids ought not to be allowed to touch the margins of the wound, nor should they be used to promote the expulsion of the lens and cortical matter. In the main, Nuel is against intra-ocular injections with mercuric salts, for they are liable to cause permanent injury to the cornea.

After the operation the parts are to be carefully dried with aseptic gauze, and then both eyes are covered with an aseptic compress kept in position with a firm bandage. As to the gauze, it ought not to be made aseptic by impregnation with any substances, for in the process of preparation it is apt to lose its absorbing properties.

Eyes operated on by Nuel are not inspected for forty-eight hours, then the dressing is taken off, and, if all is well, a new one is put on, the eye not being opened for four days. Should there be swelling or discharge, the eye must be inspected, and, if the wound be found to be infiltrated, it must be touched with the cautery, and iodoform must be used. This powder not only prevents the propagation of microbes, but also assists by drying up the conjunctival secretion.

The great question is not, according to Nuel, Is the eye absolutely aseptic? for that is perhaps impossible, but, Is it aseptic enough? This is perhaps best discovered by causing the patient to wear a bandage for a few days before operation, so that we may estimate the amount of discharge.

As regards the disinfection of instruments, Nuel points out that while carbolic acid spoils the edge, and while sublimate cannot be used, cyanide of mercury does not injure the blade, and, in solution of 1 per cent, is perfectly reliable. In preference to this, however, he boils his instruments in a weak alkaline or saline solution.

As to the material for dressing, Nuel prefers gauze which has been in a steriliser. Impregnation very often makes it irritating, and to a great extent spoils its absorbing power.

DISEASES OF THE SKIN.

By DR. A. NAPIER.

Distinct Species of Tricophyton in Human Ringworm.—In the "Paris letter" of Dr. Louis Wickham to the *British Journal of Dermatology*, January, 1893, are noticed the remarkable researches lately carried on in the St. Louis Hospital, by M. Sabouraud, house-physician to Besnier, and a distinguished pupil of the Pasteur Institute. M. Sabouraud seems to have established for ringworm what Unna has done for favus (see this journal for July, 1892, p. 74)—namely, that the different forms of the disease are, in all likelihood, due to more than one kind of parasite.

In November last M. Sabouraud "brought the results of his labours before the Société Française de Dermatologie. These results are based upon (1) the

examination of a hundred patients—clinical reports written and classified, histological reports with permanent preparations of trichophytic hairs or scales; (2) six hundred cultivations made from those patients; sixty drop cultivations, specially designed to determine the botanical characters of the trichophyton; and (4) thirty positive inoculations.

"In one and the same patient the size of the trichophytic spores is identical at all the diseased points. Some cases present a small spore (3μ), "*trichophyton microsporon*," others a large spore ($7-8\mu$), "*trichophyton macrosporon*." A number of histological characters enable one to distinguish the two species one from the other.

"*Trichophyton microsporon* shows small spores not lying in a visible mycelium; the masses of small spores are arranged without order, filling the hair; they even transgress the covering of the hair so as to furnish it with a sort of external sheath.

"*Trichophyton macrosporon* shows large spores lying in a visible mycelium, arranged in distinct lines in the mycelial branches; these branches are all included in the hairs, and do not form an enveloping sheath to them.

"Clinical and histological researches gave the following results:—

"(1) There is a very close relationship between the obstinate character of the ringworm and the *Trichophyton microsporon*. Indeed, out of twenty obstinate cases the *T. macrosporon* was found only once, the *T. microsporon* nineteen times. (2) In cases of infection at school, or from members of the same family, the spores, upon each contaminated person, maintain the same dimensions, being small, if the contagion is from a case of trichophytosis with small spores, large in the contrary case. (3) Most cases of tinea tonsurans of the scalp are attributable to the *T. microsporon*, in the proportion of sixty per cent; the remaining forty per cent are due to *T. macrosporon*. (4) In all cases of ringworm of the beard only *T. macrosporon* is found. The *T. macrosporon*, therefore, appears to be the special parasite of trichophytic sycoses. The affection of the beard is never due to contagion from a tinea of the scalp due to the presence of *T. microsporon*. Only tinea of the scalp, due to *T. macrosporon*, can prove a source of contagion to the beard. (5) All that has been said in paragraph (4) may be fully applied to trichophytosis of non-hairy parts—i. e., to tinea circinata. That affection has as its sole cause the *T. macrosporon*, the *T. microsporon* never being present.

"Thus: (a) the *T. microsporon* causes sixty per cent of the cases of ringworm of the scalp, and it is inoculable only on the scalp of children; it is found only there. (b) *T. macrosporon* causes only forty per cent of the cases of ringworm of the scalp, and is inoculable on the scalp of children; and, in addition, it produces all the trichophytoses of the beard and skin; and these three clinical varieties, due to the same *T. macrosporon*, are mutually contagious.

"Have these clinical and histological results been confirmed by bacteriology?—Yes, decidedly; and this constitutes the serious basis, the capital point, of the work. Cultures on five or six different media served to distinguish *T. microsporon* from *T. macrosporon* in the most definite manner. Cultures on potato are particularly demonstrative.

"1. *T. macrosporon* on beer wort and agar-agar gives rise to a cultivation at first like down and white, but on the fifteenth to eighteenth day becoming flour-like, dry and yellowish. On potato, the cultivation is dry from the first, and yellowish brown. On all media the fully developed cultivation preserves its dry, flour-like aspect, and its rather pale yellowish brown colour.

"2. *T. microsporon* assumes a little later than the preceding its characteristic appearance like down, which it retains throughout on all media, and this down always remains of a pure white colour. On potato the appearance of down is preceded during ten days by the formation of a reddish brown spot resembling dried blood.

"In no single case throughout the whole series of a hundred patients did the cultivations present any intermediate aspect. The cultivation of one type could never be induced to assume the characters of the other.

"M. Sabouraud performed several inoculations of these cultivations on the

skin, and he made the experiments on himself. *Tricophyton microsporon* never provoked *tinea circinata*, and occasionally only a slight erythema, which recovered spontaneously on the second or third day. On the contrary, ordinary *tinea circinata* of the skin could be produced with *T. macrosporon*. Inoculation must be done by pricking, taking care that the sweat is not acid, and the experiment must be repeated several times.

"These, then, are the two varieties which have been met with in ninety-eight out of a hundred cases. And, indeed, it happens once in a hundred times that a *tricophyton* is found, different, perhaps, from those described. Thus, in a case of *tinea tonsurans* with abnormal clinical characters, M. Sabouraud found a *T. macrosporon* differing from the common *T. macrosporon*. In two cases the parasites gave rise to quite special cultivations, which in no way resembled either of the types of human *tricophytosis* described. The one yielded black cultivations and was found in a *tinea circinata*, which presented special objective characters; the other, yielding pink cultures, was from a case of *tinea* of the beard. Everything points to the probability of these being examples of a direct infection of man by parasites from ringworm of animals. These facts demand further study."

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ORIGINAL ARTICLES.

A RETROSPECT.*

By JOHN G. M'KENDRICK, M.D., LL.D., F.R.S., F.R.C.P.E.,
Professor of Physiology.

GENTLEMEN,—Allow me, in the first place, on behalf of my colleagues, to offer you our congratulations on the attainment of your degrees. After a long period of study, and after enduring the test of many examinations, you are now members of the medical profession, and you are about to pass from these halls and cloisters to the wider arena of public life. I have no doubt you will carry away with you many pleasant memories of college life, and of friendships formed with your fellow students and with your teachers. On the whole, the period of life spent at college is a very happy one. The only dark and anxious days in it are those associated with examinations, times when the mind is oppressed by a surfeit of ill-digested facts, and when forebodings and fears make life miserable. Some time ago the young King of Servia, by a *coup d'état*, placed himself at the head of affairs, and it is said that one of his first resolutions was to continue his studies, but, with wise forethought, he determined at the same time to suppress all examinations.

* An address delivered to the Medical and Surgical Graduates of the University of Glasgow on 27th July, 1893.

This action was exactly what any sensible young man would take were he placed in the same position, and, for my part, I am of opinion that neither he nor the public would be much the worse for this mode of exercising the royal prerogative! However, in your case, all these artificial trials are things of the past; you have received the hall-mark; you are now to enter on wider duties, and to submit to far more serious tests that will determine success or failure in life.

As I considered what I should say to you to-day, my mind naturally went back to the time when I graduated in Aberdeen twenty-nine years ago. A graduation is a ceremony that can never be forgotten, and when one looks back to it through the vista of years, old thoughts crowd into the memory—the hopes, the fears, the anticipations of success, the uncertainty as to the future—and shadowy forms of revered teachers and fellow students, many of whom have long since passed away, flit before the mind's eye. The day of your graduation is one to which you will often turn, and you will mark it as one to which you will refer many events, and from which you will date the beginning of a new career. In my own case, I have chosen the date, nearly thirty years ago, as a starting point, and I asked myself the question, to what extent has the medical art developed during that period? We all know that science in general, and, in particular, the sciences of anatomy, physiology, and pathology, on which surgery and medicine are based, have made astonishing progress, and that an army of workers is now daily employed in these fields of research. By the application of better methods, the rate at which knowledge is accumulating is accelerating every year, although it must be admitted that during the last two or three years there have been few discoveries of far-reaching importance. The question, however, of the advancement of the more practical side of medicine is the one which has occupied my attention in reviewing the years of my professional life, and although for many years I have not been engaged in the practical duties of my profession, I have always maintained that interest in its progress which the teacher of physiology in a large medical school ought to cultivate if he wishes to be in thorough sympathy with his pupils. It is a question that demands consideration, and I cannot conceive of one more likely to interest you at the outset of your professional career. It is a question also that interests the public, because, after all, the practical side of our art is that which is best

understood and best appreciated by those who demand our professional services. Men and women desire you to help them in moments of suffering, and, if possible, to cure their diseases. They like practical men, and they naturally dread a doctor who tries to look, like Lord Thurlow, "more wise than it is possible for any man to be," and still more the one who, when they seek him for the relief of pain, gives them a clinical lecture on the pathology of their disease, even although they may be so impressed by his erudition as to say, in the words of the couplet—

"These are diseases he must know the whole on,
For he talks of the peritoneum and of the colon."

During the past two months, I have made a study of the question now placed before you, with the aid of the reports of the Registrar-General, of the reports of a few of the leading hospitals in our great cities, and of data supplied to me by professional friends, and I have found abundant evidence to show that there has been substantial progress along almost the whole line. I am quite aware of the dangers of dealing with statistics, and of how easy it is to draw fallacious conclusions from their study. I do not, therefore, rely solely on the statistical method, as applied to large numbers of cases, but I have checked the results of the figures by the statements made as to the diminished mortality of various diseases in the best books by standard authorities at my command, and where I have found that the opinions of the writer coincide with the results of statistical enquiry, I have thought it fair to come to the conclusion that certain diseases are more remediable now than they were thirty years ago, or the reverse.

In the first place, let me point out that there has been, during the time in question, a marked improvement in hospital construction and in the art of nursing. Hospital reform may be said to have originated in the *Reports of the Barrack and Hospital Committees* in 1861 and 1863, and also in the publication of Miss Nightingale's *Notes on Hospitals*, in 1864. The disastrous state of affairs in the British hospitals at Scutari, when the mortality reached between 400 and 500 per 1,000, due to excessive overcrowding and inefficient ventilation, led to a thorough investigation of the whole matter, and to the adoption of the pavilion system in the great majority of hospitals built since that date. The labours of Miss Nightingale also inaugurated the present system of training and of regulating the duties of hospital

nurses, a system which now attracts considerable numbers of well educated women to the public service, and which is of inestimable benefit both to the sick and to the physicians and surgeons in charge.

It is hardly necessary to speak of the triumphs of sanitation. Contrast, for example, the mortality in several of our Scotch towns from zymotic diseases in 1860 and 1888. In 1860 the deaths were 22·14 per cent of the specified causes of death, while in 1888 the percentage was only 11·32. To put the matter in another form—

	1860.*	1888.†
	Deaths per 10,000.	Deaths per 10,000.
Edinburgh, . . .	393	17·7
Perth, . . .	533	17·9
Paisley, . . .	623	57·3
Glasgow, . . .	727	28·9
Greenock, . . .	802	20·8
Leith, . . .	850	19·3
Aberdeen, . . .	880	16·4
Dundee, . . .	1,033	17·5

Taking the eight Scotch towns together, in 1860 (which happened to be a year in which the average mortality from zymotic diseases was low) no fewer than 730 persons in every 10,000 of living persons died of these diseases, while in 1888 there was a loss of only about 24 in 10,000, or a saving of life (as compared with 1860) to the extent of 706 persons in every 10,000 living.† The facts are still more striking if we select certain diseases belonging to the zymotic class. Thus, in 1860, 2,344 persons died in Scotland of "typhus" in its varied forms (including typhoid fever, which was not then definitely differentiated from typhus), that is, in the proportion of 8·1 deaths in every 10,000 persons of the population, while in 1888 (also including typhoid or enteric fever and simple fever) there were only 1·9 in 10,000. Measles affords another illustration. In 1860 the proportion

* *Sixth Report of Registrar-General for Scotland*, p. 37.

† *Thirty-fourth Report of Registrar-General for Scotland*, pp. 37 to 42; also Table xxx, p. 40.

‡ In 1860 the following diseases were included under the term zymotic:—Small-pox, measles, scarlatina, diphtheria, whooping-cough, diarrhoea, dysentery, cholera, typhus, croup, influenza, erysipelas, childbed fever, syphilis, purpura, infantile fever, rheumatic fever, worms, noma, hydrophobia, ague. In 1888 all the above diseases were included except purpura, rheumatic fever, worms, noma, and ague. The number of deaths per 10,000 from these latter diseases is so small as scarcely to affect the above remarkable result.

of deaths in 10,000 persons was 5·4, while in 1888 it was only 3·5 in the same number. In 1860 the mortality from scarlet fever was 10·1 deaths in 10,000 persons, but in 1888 it was only 1·8 of 10,000. Another scourge of childhood is whooping cough. In 1860 there were ascribed to it 12·5 deaths in 10,000 of population, and in 1888 the mortality had fallen to 4·3. Thus sanitary legislation and a better appreciation by the people of the importance of attention to details in matters relating to drainage, water supply, and ventilation, as well as better methods of isolating the sick, have put an effectual check on the ravages of epidemics. Preventive medicine is one of the most attractive of the numerous departments of our art, and it is well depicted in a passage in the *Cyropædia* of Xenophon. "I believe, father, that I have men with me who are very able in the art of physic." "Child," replied the father, "the men you speak of are like the menders of torn garments; so, when people are sick, physicians cure them, but your care of health is to be of a nobler kind—it is for you to prevent the army from being sickly."

Let us now pass to the domain of surgery. During the period under review, this art has advanced to an extent that no one would have ventured to prophesy thirty years ago. The treatment of wounds has been revolutionised since, in 1860, and in the Royal Infirmary of Glasgow, Sir Joseph Lister first developed, on the purely scientific investigations of the great Frenchman, Louis Pasteur, the antiseptic system of surgery. Prior to this date, surgical fever, or pyæmia, or septicæmia, was the scourge of surgery. Even after simple operations, inflammation, accompanied by pain and suppuration, often occurred, and frequently the patient died, apparently from the action of poisonous matter absorbed from the wound, but the nature of the poison was unknown. Great efforts were made to combat this danger by improvements in the ventilation of the larger hospitals. Hospital blocks were spread over as large an area as possible, and cross ventilation was established. As I have said, public attention was attracted to the high mortality in hospitals overcrowded and badly ventilated, by the events of the Crimean war, and it is not far from the truth to remark that our sad experiences in Scutari prepared the way for the rise of antiseptic surgery. Lister detected the connection between the evils of open wounds and the fermentations, or other chemical changes, excited by living organisms in the air. These organisms, settling from the air

on the raw wound, find a suitable nidus for their growth and development, changes of a putrefactive character are set up, and the poisonous substances thus formed are absorbed into the blood, and cause all the dangers of septicæmia. Having arrived at this scientific conception of the process, he then set about devising methods by which these organisms might be destroyed, or, still better, might be prevented from entering the wound from the moment it was made until it was healed. Such, in brief, is the antiseptic system, guided by the germ theory, the greatest contribution, in my opinion, that has ever been made to our art, not excepting even the introduction of anæsthesia or the Jennerian practice of vaccination. Think of all that it means. Think of the operations that it has made possible—operations that the surgeon can now undertake with a fair hope of success. Think of the fact that surgical fever is now almost unknown. Think of its applications to abdominal surgery and to obstetrical practice.* Lives are daily saved by the application of this method, and suffering, which is something that cannot be measured, is daily spared to the human race.

As an example of the value of antisepticism in a kindred branch of medicine, let me quote from a letter I have received from my friend Dr. Priestley, of London:—"But it is in regard to the prevention of puerperal fever, as a result of a better knowledge of septic processes, that the most striking facts are apparent in this department of medicine. If surgery has benefited in this respect, as a result of the teaching of Pasteur and Lister, obstetric medicine has equally gained ground. It is scarcely too much to say that since the introduction of aseptic and antiseptic treatment, puerperal fever has been practically abolished in lying-in hospitals. At the last International Congress of Hygiene, I pointed out that, whereas, according to the well-known statistics of Le Fort, the mortality of all the maternity hospitals in England and abroad, before the introduction of the new system, was no less than 34·21 per 1,000 from puerperal fever, it is now reduced to less than 5 per 1,000. Taking the whole statistics available, the figures showed that more than 3,000 maternal lives had been saved in the short period since the introduction of antiseptics from these precautions alone."†

These are wonderful results. Young men are hero worshippers, and when they read of any one famous in war or in patriotism, in art or literature or science, they recognise that

* See letter from Dr. Priestley, Note A.

† See Appendix, Note A.

in this man there is something that calls forth their deepest feelings of admiration and respect, and that their lives would be complete if they could accomplish anything like the achievements of their hero. I know no man, gentlemen, in our profession or out of it, in our day, who has conferred such signal benefits on the human race as Lister has been privileged to bestow; and as I feel sure that you leave this place with full knowledge of the practical details of his method, I can wish nothing better for you than that you be also imbued with the spirit of scientific enquiry which has led to such brilliant results.

I now come to a more difficult part of our investigation—namely, that relating to advances in practical medicine, and I may first of all say that, wide as medical literature is, it is next to impossible to obtain statistical evidence as to the curability of many medical diseases. It is not sufficient, of course, to point to a steadily diminishing death-rate, because that may be attributable to other causes than improvement in medical practice. Statistics on a large scale are still wanting, for two reasons—First, it is only in comparatively recent years that our great hospitals have carefully registered all their cases in such a form as to be readily accessible; and, in the second place, there is no registration of ordinary cases of disease (excluding certain zymotics) in private practice, unless the patient dies. We have therefore few trustworthy data to go upon. In passing, let me say that it would be a great gain if there were a national method of registering all serious cases of illness. It is out of place here to indicate the evident difficulties in the way of such a project, or how these might be overcome. Already a beginning has been made by the British Medical Association with regard to some diseases, and I am not without hopes that the interests of the public may by and by warrant our legislators in devoting public money to the payment of medical practitioners for information communicated by them to a central bureau, there to be collated for the public good. Until we have some such system of registration it will be impossible to draw accurate conclusions as to the prevalence of many common but serious diseases, and as to the proportion of recoveries to deaths.

When we examine hospital statistics, it is sometimes difficult to form an opinion as to the ratio of deaths to recoveries, because it is the usual practice to enter the results under three heads—namely, relieved, cured, and died, and the presumption is that many of those discharged as relieved ultimately die of the diseases in their own homes.

Bearing these statements in mind, I examined the records of the Royal Infirmary of Glasgow and of St. Bartholomew's Hospital in London, two great representative institutions, both supplied with physicians of high reputation. The general results are very interesting. Thus, diseases of the nervous system in 1864 gave 14·2 per cent of deaths, while in 1892 the percentage was only 8·3, showing a diminution of 5·9 per cent. Curiously, diseases of the respiratory organs give in both 1864 and 1892 the same figure—16 per cent of deaths; and the same is noticeable with regard to diseases of the circulatory system, a mortality of 25 per cent appearing both in 1864 and 1892. In 1864, however, dropsies were included under the heading of diseases of the circulatory organs, and if we eliminate these on the ground that they may not all have had a cardiac origin, the percentage of deaths in 1864 is 20, while in 1892 it has increased to 25. Diseases of the genito-urinary system also show an increased mortality, rising from 10 to 20 per cent. Bronchitis in 1864 gives 6 per cent of deaths, and in 1892, 10·8 per cent. There is a diminution in phthisis—namely, from 20 per cent in 1864 to 18·5 in 1892. There is a striking diminution in pneumonia, the figures falling from 45 per cent in 1864 to 26 per cent in 1892. Bright's disease, on the other hand, shows a great rise, passing from 14 per cent in 1864 to 30 per cent in 1892. Taking all the medical cases together, the mortality in 1864 was 13 per cent, and in 1892 it was 13·71, thus showing a slight increase.

Look now at the figures from St. Bartholomew's Hospital. It is very remarkable, in the first place, that the percentage of deaths in the medical wards comes out in nearly the same figures, being 11·11 per cent in 1864, and 11·36 in 1892, again showing a slight increase in the mortality, as we have seen was the case in the Royal Infirmary of Glasgow. Comparing the two years 1864 and 1892, we find, as regards diseases of the nervous system, a rise from 13·8 to 25 per cent; phthisis shows a fall of from 55 to 46·5 per cent; heart cases, a rise from 30 to 33 per cent; bronchitis, a fall from 29·9 to 25 per cent; pneumonia, a fall from 31 to 25 per cent; genito-urinary diseases, a fall from 26·1 to 25 per cent; and Bright's disease, a fall from 40 to 33 per cent.

I have found it impossible to obtain corresponding data from other hospitals, because systems of registration and classification vary considerably; but where figures have been available, even in isolated instances, these figures correspond closely enough with those obtained from the records of the

two great hospitals in London and Glasgow as to show that these institutions may be taken as fairly representative.

I am quite aware that these figures are by no means conclusive, although, on the whole, they support the view that the treatment of certain diseases has improved. Thus, of seven groups of diseases there is a slight balance to the good. It is a very small balance certainly, but it is on the right side. We can examine this question, however, on a broader basis, by collating the facts given in the reports of the Registrar-General. This has already been done by Dr. George Blundell Longstaff, in his suggestive book entitled *Studies in Statistics*, a book bristling with figures, but, at the same time, fascinating by virtue of its literary graces and scientific insight. I have a certain satisfaction in being able to say that, before I came upon the mine of information in Dr. Longstaff's work, I had collated some of the figures for myself, and had reached substantially the same conclusions. The general decline of the death-rate in recent years is very striking. From 1838 to 1875 inclusive, the death-rate averaged 22·3 per 1,000, but during the eight years from 1876 to 1883 inclusive, it fell to 20·3. Further, it has been shown by Mr. Noel A. Humphreys that this indicates that the mean duration of male life has been increased by 2 years, and that of female life by 3·4 years, as compared with the English life table (that forms the basis of systems of life insurance), and this increased life is lived between the ages of 20 and 60 years, the most useful period of human existence. Can this diminution in the death-rate be accounted for? and to what extent may we attribute it to improvements in the treatment of diseases?

In the first place, I selected the more common diseases, ascertained the number of deaths from each disease in 1864 and 1887 (a period of twenty-three years), and, taking the population of the country as the basis, calculated the proportion of deaths to 1,000,000 of living persons. These figures I give in a table, with which I need not trouble you,* but the general result is this:—There is a rise in the mortality from cancer, inflammation of the brain, insanity, chorea, diseases of the heart, bronchitis, pleurisy, diabetes, and kidney diseases; whilst there is a fall in the mortality from zymotics, diarrhœa, tabes, phthisis, apoplexy, paralysis, epilepsy, convulsions in children, pneumonia, female diseases, childbirth, and accidents. These are my own results.

On examining a table, constructed on a similar method, that

* Appendix, Note B.

appears in the *Registrar-General's Report*,* I find that, if we compare 1858 with 1883, the chief diseases rising in mortality are cancer, diabetes, brain diseases, heart diseases, and, to a small extent, diseases of the respiratory organs; whilst those falling in mortality are—small-pox, measles, scarlet fever, typhus, enteric fever, whooping-cough, diphtheria, diarrhœa, erysipelas, thrush, phthisis, convulsions in general, croup, and diseases of the liver and of the digestive organs. Here, in twenty diseases, or groups of diseases, there has been, during a period of twenty-five years, a fall in the mortality in fifteen and a rise in five.

Finally, I take a valuable table, collated by Dr. Longstaff, from the *Registrar-General's Forty-third Annual Report* for the quinquennium 1875 to 1879, compared with averages of quinquennium 1850-54, showing the rise and fall in the death-rates per 1,000,000 persons living.

RISE AND FALL IN THE DEATH-RATES PER 1,000,000 PERSONS LIVING IN ENGLAND AND WALES, FROM VARIOUS CAUSES OR GROUPS OF CAUSES. AVERAGES OF QUINQUENNIAL 1875-79, COMPARED WITH AVERAGES OF QUINQUENNIAL 1850-54.†

RISEN PER 1,000,000 LIVING.		FALLEN PER 1,000,000 LIVING.	
Lung diseases,	1,213	Phthisis,	694
Heart,	696	Developmental disease, . .	617
Brain diseases (excluding		Fever,	596
convulsions,	378	Dropsy,	405
Kidney diseases,	229	Convulsions,	342
Cancer,	191	Cholera,	287
Diphtheria and croup, . .	69	Small-pox,	197
Tabes mesenterica,	65	Scarlet fever,	173
Whooping-cough,	45	Tubercular meningitis, . .	111
Rheumatism,	45	Sudden death—cause unas-	
Liver diseases,	32	certained,	101
		Diarrhœa,	85
		Diseases of stomach and	
		intestines,	68
		Measles,	64
		All other causes,	299
Total,	2,963		4,012
Balance, a fall of 1,049.			

* *Forty-Sixth Annual Report of Registrar-General for England* (Abstracts of 1883), p. lx.

† *Studies in Statistics, Social, Political, and Medical.* By George Blundell Longstaff, M.A., M.D. (London: E. Stanford. 1891), p. 230.

The diseases showing a rise in mortality are placed in the following order:—Lung diseases, heart, brain diseases (excluding convulsions), kidney diseases, cancer, diphtheria and croup, tabes mesenterica, whooping-cough, rheumatism, and diseases of the liver; those showing a fall are, in order—Phthisis, developmental diseases, fever, dropsy, convulsions, cholera, small-pox, scarlet fever, hydrocephalus or tubercular meningitis, sudden death (cause unascertained), diarrhoea, diseases of stomach and intestines, measles, and diseases of other kinds not enumerated in this list. Thus, of twenty-four diseases, or groups of diseases, enumerated, there has been a diminished mortality in fourteen, and an increased mortality in ten; but the total result, after balancing the account, is a saving in life in England and Wales alone of 24,000 persons per annum.

There are several remarkable facts brought under our notice when we study these results. First, the increased mortality from lung diseases; second, the great fall in the mortality from phthisis. The latter disease has declined in death-rate for males to the extent of 14 per cent, and for females to 22 per cent, and the fall in mortality has been greatest between the ages of 15 and 35—that is to say, lives have been saved at a period of life when they were most valuable to the community. There has thus been a saving of life from this fell disease in one year of 3,966 males and 6,806 females, or a total of 10,772. We now know that phthisis is a disease associated with the tubercle bacillus, and we can attack it in a very direct fashion. There can be no doubt that the saving of life is largely due to preventive medicine, but it is affected by curative medicine as well, and I believe it will be more so in the future. Here medicine has achieved a triumph, worthy of being compared with the triumphs of surgery, but much yet remains to be done. We must study more carefully those peculiarities of human tissues that make them favourable for the development of the bacillus; we must learn how to alter, by inoculative or other procedures, the quality of those tissues; and, finally, we must adopt measures for destroying the bacillus after it has found a lodgment in vital organs.

I have already alluded to the enormous saving from death caused by fevers of various kinds. Here there is a fall of 57 per cent in the mortality, and the number of lives saved is over 12,000 per annum. No doubt this saving will be largely claimed by sanitary reformers; indeed, we admit that the fall in the death-rate from fever is their great triumph,

but some of the credit is due to curative treatment. The method of treating fevers has greatly improved since 1864. As an illustration, let me only mention one advance in treatment that will be imperishably associated with the name of my distinguished colleague Professor Gairdner. In the old days, and mainly under the influence of Dr. Todd, of King's College, London, typhus cases in hospital were subjected to a stimulant treatment of receiving, say, 60 oz. of wine and 7 oz. spirits daily, and the mortality was from 17·5 to 25 per cent, that is to say, even in Dr. Todd's own hands, 1 in every 4 died. In 1863, Dr. Gairdner introduced a modified treatment into the Glasgow Fever Hospital, where the mortality under the old stimulant treatment was about 17½ per cent. The stimulants were reduced to 2¼ oz. of wine and 2½ oz. of spirits, and the mortality dropped to 10 per cent. In 1864, Dr. Russell, our learned medical officer of health in Glasgow, treated, on this principle, 300 cases of typhus, and had a mortality of only 11·2 per cent. Here, then, there was a striking diminution in mortality by the adoption of a different mode of treatment. Typhus is now rare. We have almost annihilated an enemy that at one time slew its thousands per annum; but even if it should get a hold on a portion of the community, the patients have, under Gairdner's treatment, nearly three times a better chance of recovery than under the old *régimé*.

The mortality from scarlet fever and measles has also notably diminished. This, I think, is chiefly to be attributed to improved methods of treatment, because preventive medicine has not done much to control these diseases. If parents co-operated more heartily with teachers in schools and with the public authorities in notifying the occurrence of these diseases, and in adopting measures of complete isolation, the mortality from both would suffer a still greater diminution.

The increase in the death-rate from diseases of the lungs has been considerable, amounting to 11,894 per annum. These diseases are most fatal in the first five years of life and after the age of forty-five. In the first place, the increase may be partly accounted for by the fact that pulmonary diseases carry off many old people, and as the number of old people is increasing annually, the deaths from pulmonary diseases caused by the vicissitudes of our climate must also increase. It is to be feared, however, that the increase is largely owing to the neglect of children among our poorer classes. Our sanitary authorities can, to a considerable extent, force such people to attend to cleanliness, and they can supply them with fresh

air, but they cannot compel them to clothe more warmly the little children that shiver in our streets and closes.

The mortality from heart disease and dropsy, from brain diseases, and from kidney diseases has considerably increased. No doubt many causes are at work. These organs have to bear the strain, not only of the struggle for existence that is yearly increasing, but also of the depraved habits of large classes in the community. Intemperance is a potent factor in producing this state of things. It is now known that, while the absolute quantity of alcohol consumed in Great Britain is on the increase, the relative quantity, or, to put it more accurately, the quantity per head, is diminishing. This indicates a growth of sobriety, more especially in certain classes of society, but it is to be feared that the lower classes are not becoming more temperate but the reverse, and that their habits contribute to the increase observable in diseases of the great organs. The effect of daily contaminating the blood with alcohol is a matter largely of degree, but there can be no doubt of the fact that there is a daily dose which slowly but surely works disastrous effects upon brain, and vessels, and kidneys.

I shall only briefly refer to one other fell disease, cancer. It would appear that this malady is increasing. It is credited with an increase of 2,848 deaths per annum, and of these persons seven-eighths were above the age of forty-five. A part of this increase may be accounted for by better diagnosis and more careful registration, but, making this allowance, there still appears to be a steady increase. Perhaps it is the most serious malady the surgeon and physician have to face. They stand powerless in its presence, so far as curative measures are concerned, and yet one cannot help thinking that some day its successful treatment will be another of the triumphs of our art. The reason I have for taking this optimistic view is that the evidence appears to be accumulating in favour of the opinion that it is a parasitic disease, due to a lowly organism finding its way into our tissues from the outer world. If this be established, then we will be in a better position for successfully dealing with it.

The investigation I have placed before you brings out another remarkable result which may be pondered over by those who think that improvements in the art of medicine will necessarily prolong the duration of human life far beyond the time allotted to him by the Psalmist. We see that lives are being saved from fever, phthisis, scarlet fever, and diarrhoeal diseases; but, on the other hand, they are being lost at

an increasing rate from pulmonary, cardiac, and renal diseases, and from cancer. Putting it broadly, we are saving young and valuable lives, but we are losing older and less valuable ones. Now, if the diminution in the mortality from the diseases that destroy young lives continues, it will reach zero, and no more can be saved; but, on the other hand, if the increase in the mortality from the diseases that destroy older lives increases, there is no saying where it may end, and the result is that human life, instead of being prolonged, as one would naturally expect, will, by and by, diminish in duration. We will then reach the condition of society when more people will survive the perils of early years, while fewer will reach advanced old age. It is a satisfaction, however, that in this state of things, the amount of life useful to the community will not suffer diminution,* because lives will be saved while they are more valuable, not only to the State, but to their more immediate relatives. Then the spectacle of a young man cut down at the outset of his career will be a rare event, and not a sadly common occurrence, as it is in our experience. We are far from having reached this point of social evolution, but a study of vital statistics in present conditions appears to indicate that it is inevitable, or at all events very likely to occur.

Let me remark, in passing, that one of the most overwhelming facts that comes to light in the study of vital statistics is the rate at which the population of the world is increasing. For example, England and Wales alone add to the population of the world every day about one thousand persons—that is to say, there is this surplusage of births over deaths. One thousand little mortals march to the front every day, so that at the end of a year there is an army of 365,000 clamouring for food, and by and by for work. This is the growth of the national strength. Considerably over half a million human beings pass into eternity every year from England and Wales alone, but their places are taken by the next generation, and the next generation is steadily increasing in numbers. This afflux and efflux of human life, by the inevitable laws of birth and death, is a great and impressive phenomenon, calculated to awaken many reflections.

On the whole, then, I think I have been able to show that if we are to draw conclusions from the diminution in the death-rate of various diseases, we are fairly entitled to say that both preventive and curative medicine have advanced during the last thirty years. I admit that, as regards curative

* Longstaff, *Studies in Statistics*, p. 245.

medicine, the case is not strikingly strong, except in special instances, such, for example, as the treatment of acute rheumatism by salicylates, devised by MacLagan in this country and by Stricker and Riess in Germany, in 1876, a treatment which has, I believe, practically abolished the prolonged cases with cardiac complications we were familiar with thirty years ago.

I can only refer to the marked improvement that has taken place in the treatment of many diseases not fatal to life, but sufficient to make existence almost intolerable. The growth of specialism, while not an unmixed benefit, has undoubtedly improved the treatment of diseases of the eye, ear, throat, nose, and skin, and all the improvements imply more speedy cure and greater relief from suffering. The treatment of the insane also shows a great advance—in the architecture and equipment especially of our asylums; in the large grounds that now surround these noble institutions, in which the patients can obtain relaxation and variety of work; and in the total abandonment of all systems of seclusion and almost of compulsory restraint. The cell of the maniac does not now exist, and instead of being left alone in his frenzy, he is allowed often to stray in the open air, accompanied by an attendant, and the sights and sounds of nature bring calm and rest to his troubled brain. This is no fanciful picture, and it indicates the lines along which medicine now strives to bring relief to the mental sufferer. It may not be easy by statistics to prove that insane cases are more curable, but at all events the life of the lunatic is made tolerable, and even to approach happiness.

But I need not say to you that it is not the sole function of a physician to cure disease, using the word *cure* in the narrow acceptance in which it is generally understood. Many diseases can never be cured. When pathological changes pass beyond a certain limit, no power on earth can efface them, and the complicated bodily organism can work no longer. But, even in these circumstances, the cultured physician has important duties to perform. By his skill in diagnosis, he prepares the patient and his friends for the inevitable, and thus enables the dying man to perform his last duties to those depending on him. This is no mean function. It is a duty that can only be rightly done by a good man who has a chord of sympathy in his heart for those who hang upon his words, and it is one the performance of which often calls forth, in the sick chamber, a quiet and impressive heroism that raises our opinion of the dignity of human nature.

It may require even more courage to face the inevitable in the silence and gloom of the sick chamber than amid the excitement of the battlefield or the horrors of the sinking ship. Still more, even in dealing with incurable disease, we can soothe pain and diminish suffering. Time will not permit me to refer in detail to the numerous antipyretics that have been added to our armamentarium during the last thirty years. Starting from pyridin, we have kairin, antipyrin, thallin, acetanilide or antifibrin, pyrocin, methyl-phenyl-acetamide or exalgin, thermifugin, and antiseptin—all bodies now artificially formed, and all having important physiological properties that can be used for the subjugation of fever and the relief of suffering. Then we have the artificial hypnotics, chloral, chloral-hydrate, bromal hydrate, iodaldehyde, and and butyl-chloral-hydrate—substances that may be regarded as the fruits of the numerous researches that have been made into the connection between chemical constitution and physiological actions. With such drugs at your service, you will be able to smooth the bed of suffering to a far greater extent than was in the power of your predecessors.

The total result, then, of the progress of medical science during the last thirty years may thus be briefly summed up:—(1) Thousands of lives saved annually by preventive medicine; (2) greater accuracy in diagnosis, and a sounder knowledge of the natural history of disease; (3) more rational treatment; (4) many diseases caused to pass through their stages more speedily, thus saving time; (5) better means of relieving pain and suffering; and (6) making disease, even when incurable, more tolerable, and at last smoothing the passage to the Elysian fields.

Let me say in closing that it is much to be regretted that the relations of our profession to the public are not all we could wish. It is quite true there is ample recognition of the large philanthropy of the medical profession, and of the self-denying and sometimes heroic labours of medical men, but occasionally there is a want of appreciation of our efforts as regards the scientific aspect of medicine, whilst even educated men show a hankering after what they call *curing* disease. There is still in the public mind a belief that disease is an entity, something that must be driven out of the body or conquered by a specific remedy. The layman has a difficulty in grasping the scientific conception that disease is not a thing but a perverted process, a process that must be guided back to normal lines by judicious methods founded on a sound knowledge of its natural tendencies.

There is also a sentimental disposition to put barriers in our way. Men do not yet see that each department of medical science (like all departments of science) must be allowed to pursue its own path, and to acquire facts by its own methods, irrespective of practical results. Hence the impatience and the tendency to check the free play of scientific enquiry. Bacon, in the *Advancement of Learning*, admirably sums up the whole matter, and his words are as true in our day as they were in his:—"Almost all other arts and sciences are judged by acts or masterpieces, and not by the successes and events. The lawyer is judged by the virtue of his pleading, and not by the issue of the cause. The master of the ship is judged by directing his course aright, and not by the fortune of the voyage. But the physician, and perhaps the politician, hath no particular acts demonstrative of his ability, but is judged most by the event, which is ever but as it is taken; for who can tell, if a patient die or recover, or if a state be preserved or ruined, whether it be art or accident? And, therefore, many times the impostor is prized, and the man of virtue taxed. Nay, we see the weakness and credulity of man is such, as they will often prefer a mountebank or witch before a learned physician."

I have now given you a short account of a thirty years' war, a war against disease and suffering. You are about to take part in the fray, and I hope that, thirty years after this, you will be able to report progress as substantial and as real as I have been privileged to do to-day. You must not suppose that absorption in the active duties of your profession precludes you from doing scientific work. In the ranks of general practitioners there are striking examples that prove the contrary. Lockhart Clarke first taught histologists how to unravel the complicated structure of the spinal cord, and Parker pursued abstruse studies in morphology, while they were both busy practitioners in London. Dr. Macmunn has a large practice in Wolverhampton, but he finds time to add to our knowledge of animal pigments. One other remarkable instance occurs to me—that of my dear friend and fellow-student, the late Dr. James Ross of Manchester. Early immersed in a busy practice in a midland district, he began those studies of the nervous system that laid the foundations of his great work on this subject, and amid many vicissitudes, he always found time and energy for the contemplation of scientific and philosophical questions. With such examples before you, I wish you to leave this university with a strong

faith in the future of your profession, combining in your mental attitude a spirit of keen criticism with one of eager interest in new facts and new views of things. Though

“The old order changeth, yielding place to new,”

we may be certain there will be a harvest to every seeker after truth, and as truth is not to be found only in the classrooms of a university, in the wards of a hospital, nor in the laboratories of science, but also in every walk of professional life, one and all of you may hope to add something to human knowledge, and to contribute something to human progress.

My older friends and colleagues present will pardon me for addressing to them the speech of Ulysses when he resigned the sceptre into the hands of Telemachus, and tempted the seas once more in quest of new adventures:—

“Free hearts, free foreheads—you and I are old :
Old age hath yet his honour and his toil ;
Death closes all, but something ere the end,
Some work of noble note, may yet be done.

‘Tis not too late to seek a newer world,
Push off, and sitting well in order,
Smite the sounding furrows.”

APPENDIX.

NOTE A.

*Letter from Dr. Priestley, London, to Dr. M'Kendrick,
dated 18th June, 1893.*

“You ask me concerning the progress which has been made during the last thirty years in obstetric medicine and gynecology.

“I can now look back for a longer period than thirty years, and I think the progress which has been made since I began practice has been quite equal to that in medicine or surgery—in some respects, indeed, it has outpaced them.

“In midwifery proper, the improvements in the construction of forceps and instruments used as an alternative for the old operation of craniotomy have steadily tended to the diminution of maternal mortality in child-birth, as is shown in the later bills of mortality. The same may be said in reference to the measures taken for obviating the serious consequences of hæmorrhages before, during, or after delivery. A better knowledge of the anatomical and pathological conditions producing these complications has led to

improved methods of procedure in these, as well as other morbid states pertaining to the puerperal period.

"But it is in regard to the prevention of puerperal fever, as the result of a better knowledge of septic processes, that the most striking results are apparent in this department of medicine. If surgery has benefited in this respect as the results of the teaching of Pasteur and Lister, obstetric medicine has equally gained ground. It is scarcely too much to say that, since the introduction of aseptic and antiseptic treatment, puerperal fever has been practically abolished in lying-in hospitals. At the last International Congress of Hygiene I pointed out that whereas, according to the well known statistics of Le Fort, the mortality of all the maternity hospitals in England and abroad, before the introduction of the new system, was no less than 34.21 per 1,000 from puerperal fever, it is now reduced to less than 5 per 1,000. Taking the whole statistics available, the figures showed that more than 3,000 maternal lives had been saved in the short period since the introduction of antiseptics from these precautions alone. This, I think, is one of the most striking triumphs of preventive medicine, and belongs exclusively to the department of obstetrics. I regret to say that as yet the same satisfactory results do not appear in private practice throughout this country. Dr. Boxall, *pere*, who is one of our most trustworthy statisticians in this department, shows that there is still a lamentable prevalence of puerperal fever in the country districts, which seems to indicate either that antiseptic precautions are less easily enforced in private practice than in hospital, or else that medical men are less circumspect in private practice than the circumstances require. Whatever the explanation, it may be well to direct the attention of those about to enter medical practice to the fact that here lies a field for their careful study in the future, and that a neglect of precautions which experience has proved to be so essential to the welfare of puerperal patients entails a very grave responsibility.

"In treating diseases of women there have also been marked advances. I recollect when a great surgical authority in London asserted that anyone who attempted the removal of an ovarian tumour by abdominal section ought to be tried for manslaughter. Now we hear of seventy ovarian operations in succession, in the hands of Dr. Thomas Keith and Sir Spencer Wells, without a single death! and in the entire range of gynaecological operations the improvement has been most remarkable. Many more lives have been saved than formerly, or in cases where life was not actually threatened, the woman, from being a permanent invalid, has been restored to active usefulness again. It should not be forgotten, in writing to you in Scotland, that the initiative in many of these points of progress was largely due to the genius of the late Sir J. Y. Simpson.

"Perhaps I may be allowed to say, as a word of caution to your new graduates, that in my view the advances in gynaecological

operations have thrown the balance of treatment in diseases of women somewhat unduly over to the surgical side. Gynecologists have been charged with being seized by a *furor operandi*, and as being too prone to look upon every female ailment as calling for some surgical interference. One distinguished writer pathetically begged his brother physicians, when treating diseases peculiar to women, to bear in mind that women had other organs besides those in the pelvis.

"There can be no doubt that improvements in any field of work may give for a time an undue impulse in a certain direction; but extremes gradually right themselves, and reason eventually prevails. A caution to new graduates not to be guided too exclusively by mechanical or local theories of causation in diseases peculiar to women may be useful; but I am sure, from the retrospect of this branch of work, they will find abundant encouragement for hopefulness, and may look confidently to still further advances in the future."

NOTE B.

Causes of Death.

	1864. Deaths to 1,000,000 living.	1887. Deaths to 1,000,000 living.
Zymotics,	5,770	1,658
Diarrhœa,	798	717
Cancer,	394	606
Tabes Mesenterica,	289	249
Phthisis,	2,578	1,591
Inflammation of Brain,	195	316
Apoplexy,	501	565
Paralysis,	515	417
Insanity,	32	88
Chorea,	3	4
Epilepsy,	117	106
Convulsions,	1,282	767
Diseases of Heart, &c.,	1,094	1,643
Bronchitis,	1,894	2,085
Pleurisy,	46	57
Pneumonia,	1,189	1,097
Total Diseases of Respiration,	3,663	3,713
Diseases of Digestive System,	1,016	1,068
Diabetes,	32	62
Kidney Disease,	265	493
Female Diseases,	63	47
Child-birth,	123	61
Accidents,	734	519
Murder and Manslaughter,	20	12
Suicides,	64	80

A FŒTUS WITH VARIOUS DEFORMITIES, APPARENTLY DUE TO ADHERENT AMNION.*

By DONALD MACPHAIL, M.D., WHIFFLET.

ON the 19th November, 1892, I was called hurriedly to see Mrs. S., aged 31, who had been "flooding" for four hours. She was about five months advanced in her sixth pregnancy. She had been bleeding continuously for about eight weeks, but as the discharge had not been profuse, and was not accompanied by any special pain, and as she had had similar experiences before without mishap, she continued going about as usual and said nothing about it. On the day I was called severe flooding had begun suddenly, without apparent cause, while she was moving about quietly. It continued till I saw her, absolutely without pain of any kind, and I found her collapsed, pallid, and faint, with small thready pulse, dilated pupils and dim vision. On examining, I found the fœtus shown lying loose in the vagina, and removed it. I found the uterus, apparently about five inches in length, both anteverted and anteflexed, the os being high and directed backwards, and the fundus felt easily through the anterior vaginal cul-de-sac, and indistinctly from without, above the pubis. There was no special tenderness, and the uterus could be easily and freely moved about between the one hand in the vagina and the other above the pubis. The os admitted two fingers easily. The placenta was in the uterus, but was easily extracted with ovum forceps. It was entire, about $2\frac{1}{2}$ inches in diameter, very thin, yellow in colour, friable and greasy, resembling partly cooled roasted fat in colour and consistency. Nothing could be seen of the membranes. There was no serious bleeding after the placenta was removed. For a while she was very faint and giddy, sighing and tossing in bed, but pretty free dosing with whisky soon revived her, and she made a quick and good recovery. She had no after pains. A noteworthy incident of the case is that I found a child with a well developed scarlet fever rash in bed beside her next morning. The child had been ailing for a day or two, and had slept with her every night, and had been attended to by her all day. The incident had no effect whatever upon her progress towards recovery.

The woman is small, slim, and delicate-looking, but, in spite

* Read at a meeting of the Glasgow Pathological and Clinical Society, 8th May, 1893.

of much suffering and disability, is cheerful and active. When she was younger she was a seamstress, and worked most of her time with a heavy sewing machine. Since about the age of 18 she has suffered almost constantly from pain over the sacrum, in both groins and above the pubis, and sometimes down the inner sides of the thighs, with dysuria and irritability of the bladder. Menstruation before and between her pregnancies has always been frequent and profuse, and during the periods, and even more so during her pregnancies, the various pains generally have been much more severe. At about the age of 19 she sought medical advice, and was told that "her womb was out of place." A pessary was tried, but did no good. At the age of 22 she was married against the advice of her doctor. Nine months afterwards her first child was born, prematurely, in the seventh month. The labour was a very difficult one, instruments being used, but what the nature of the difficulty was she cannot tell. The child was well formed, and is alive now, healthy and well grown. Her second child was born prematurely, but lived, and is healthy. There was no difficulty about that labour. Her third child, still alive and healthy, was born easily at full term, but she was confined to bed for two months before her confinement, and was very ill for some time after it. Her fourth pregnancy ended normally at full term, and the child is alive and healthy. Her fifth pregnancy ended normally (one year and seven months ago) at full term, but after six weeks confinement to bed, and that child is alive and healthy. The confinement to bed towards the end of the third and fifth pregnancies seems to have been rendered necessary by hæmorrhage mainly, but also partly by aggravation of her habitual pain and disability. More exact particulars might have been given had not the patient left this district, and so passed from under my observation.

The fœtus, as shown in its natural curled-up attitude, measures about $3\frac{1}{2}$ inches from crown to the furthest point of the hips. When it was removed from the vagina it was very soft and macerated looking. It is now somewhat shrunken and shrivelled from being kept in spirit. It otherwise is just as I got it, with the exception of the mouth and upper limbs. The difference will appear from what follows.

The head is normal in size and shape, allowing for the shrinking, which, owing to the looseness of the bones and the wide fontanelles, has altered the general contour. The eyes are normal in situation, but covered in by an integument which is continuous over the whole head, but through which

the orbital outlines and palpebral fissures can be seen. In the fresh state the eyes looked dark coloured through their covering. There is no nasal prominence, but the nostrils are represented by two minute depressions in their normal situation, or, if anything, a little further apart. There is no indication of ears. The mouth is now patent, but in the original state of the specimen it too was covered in by a thin membrane continuous with what covers the rest of the head, but which stripped off that part easily. Over all the rest of the head, except over a small area over the occiput, the membrane was and is firmly adherent.



The body is normal in shape, the normal outlines of the ribs, spinal column, and pelvis being visible through their coverings. Originally the integuments of the body looked loose as if from maceration, and a portion over the lower part of the back stripped off easily. The rest appeared to adhere firmly.

The right upper limb is fairly normal in shape, but the forearm bones appear to be dislocated forwards at the elbow-joint, and the hand is adducted to a right angle at the wrist, and has no thumb, but four fingers, of which the outer two are short and stumpy, and all are webbed. The left upper limb is normal in length, but the elbow is projected forwards and the forearm bent back at a right angle, apparently not

owing to any abnormality in the elbow-joint, but owing to complete inward rotation of the humerus. The hand is a conical mass continuous in outline with the forearm, terminating in a little twist of shrivelled membranes. Originally the forearms were bound closely together, the point of the left elbow fitting closely into the hollow of the right. The binding material was a very thin elastic membrane, which enveloped them both from the elbow to the extremity, but which gave way very easily when the limbs were stripped apart.

The lower limbs, normal in length, are strongly flexed at the hip-joints, and slightly at the knees. The thighs are normal. There appears to be slight posterior dislocation at the left knee. The left leg is normal. The right leg is thin and tapering, and there is a fracture with angular displacement a short distance below the knee. The feet are represented by one small shapeless mass into which both legs are continued, the left at a higher level than the right. This mass may be two deformed feet bound together by some investing tissue, but it is impossible to recognise any appearance of division, and in the fresh state it was found impossible to separate the extremities of the lower limb by traction much firmer than what separated the forearms.

With regard to the genito-anal sulcus, it is covered in by loose integument. No sign of an anus can be seen, but to the front there are parts which resemble a vulva. The pelvis appears to be normal, and the hips also are of fair size, the sulcus between them being of normal depth.

From this description there can be little doubt that this is a case of adherent amnion, and that the various deformities are due to this and not to any developmental defects. The most of the abnormal characters of the limbs are of the nature of "intra-uterine fractures and dislocations." The abnormalities of the head appear to be more apparent than real, and it is probable that careful dissection would reveal the presence of apparently missing organs, somewhat altered by the pressure of an investing membrane. The foot or conjoined feet is the most interesting part. Whether careful dissection might reveal the presence of two separate feet within an investing membrane the appearance of the parts makes it impossible to guess. If the two feet have actually become welded into one, then the case is all the more interesting, for the deformity is then one of a kind very rarely seen, and which in fact some authorities deny the existence of—e.g., Geoffrey St. Hilaire, in his *Anatomie Philosophique*. Professor Annandale, of

Edinburgh, however, in his work on *Deformities of the Fingers, &c.*, gives a drawing of a hand with two of the fingers distinct proximally, but welded together at their extremities. The case has nothing to do with arrest of development, because the condition does not represent any stage of foetal growth. It is quite different from these cases of conjoined lower limbs, *symelia* or *sympygus*, where the limbs are conjoined from the very beginning owing to the suppression of intermediate parts. The limbs must have been wholly separate for a considerable period of their growth, whether they were normal in form or not, for they must have been pretty well formed before they were long enough to meet across the intervening space. If these two feet have been separate and growing independently up to a certain stage, and have then by compression become welded into one mass, whether one has suppressed the other or not, it might open up the question whether some double monsters may not have been originally separate.

CLINICAL MEMORANDA, BEING SELECTED CASES FROM THE WARDS OF

DR. M'CALL ANDERSON,
Professor of Clinical Medicine in the University of Glasgow.

(REPORTED BY WM. R. JACK, M.B.)

VI.

12. *Malignant Tumour at the Base of the Brain, with Secondary Nodules in the Liver.*

W. S., aged 46, by trade a ferryman, was admitted to Ward II on 23rd January, 1893, complaining of headache of eight, and loss of sensation on the right side of the face of six months' duration.

His father died, at the age of 50, of cancer of the stomach, his mother, at 46, of some form of heart disease. They had a family of three—two brothers and a sister. The brother died in childhood; the sister is alive and well. The patient is married, and has had eight children. Of these, one died before the age of three months, about six years ago; one was still-born, between three and four years ago; and a third

died, like the first, before the age of three months, about three years ago.

His past health has been excellent. Until six years ago he was employed as a dock labourer, and, though much exposed, he never had more than an occasional cold. He then became a ferryman, and for some time drank considerably, but he has latterly been less intemperate.

In May, 1892, he began to complain of pain in the right ear, unaccompanied by any discharge. For this he was treated for a time, but without effect, and in the course of a month or six weeks he became completely deaf on that side. About the same time he suffered much from headache. The pain was very severe, and made him feel as if the head would burst. It was almost continuous, but much aggravated at night. At first it was confined almost entirely to the right frontal region. Since its onset the pain has hardly ever been completely absent. Of late it has extended to the left frontal region, where, however, it is less severe; and it still preserves the nocturnal character.

In June, 1892, a fulness appeared on the right side of the neck, between the angle of the jaw and the ear. Its size was variable, the swelling being now very marked, and now almost absent. It never caused any pain. Blisters, which were several times applied, reduced it only temporarily. A similar swelling, above the outer part of the right clavicle, has existed, he states, for many years. A month or so after the appearance of the fulness described, the patient began to notice a loss of sensation in the right side of the face, which was accompanied by loss of power in the muscles. The two symptoms very gradually grew worse, and it was not till three or four months later that anæsthesia and paralysis were complete. In September, 1892, the right eye became affected. It was turned inwards towards the opposite side, and about the same time his sight became a little dim.

His general health remains good, although there is slight constipation.

On examination, the whole of the right side of the face is found to be paralysed. He cannot wrinkle his forehead, nor draw up the angle of his mouth, which is pulled towards the left when he attempts to do so. Food lodges between the right cheek and the gums. Anæsthesia extends over the whole of this side of the face to the middle line. It involves the ear, and is continued on to the head for about 3 inches beyond the margin of the hair. The right side of the nose and the neighbouring part of the cheek are much swelled and

inflamed, and the right nostril is the seat of a discharge which forms dark-brown crusts about the orifice. There is complete ptosis on the right side, and internal strabismus. The eye cannot be rotated outwards, and its upward movement is slightly impaired, but all the other motions are perfect. The eyeball is much congested. The pupils are equal. Dr. Reid reports that on the right side the vitreous is muddy, the nerve pale and atrophied, and the vessels congested. There is no papillitis, and the left nerve is normal. Dr. Barr, who examined the ears, reports that the right-sided deafness is due to chronic catarrh of the middle ear, and not to involvement of the auditory nerve. There is a glandular enlargement between the angle of the jaw and the ear. The tumour, of older date, above the clavicle, is a sebaceous cyst.

No history of syphilis is obtainable, but on examination of the trunk an eruption is found, which consists of spots and blotches like iodic acne, but darker in colour than usual, some of the patches being distinctly coppery. The rash was produced by iodine administered before admission.

Dr. Anderson diagnosed a tumour at the base of the brain on the right side, involving the fifth and sixth nerves, the portio dura of the seventh, and the third partially, and possibly syphilitic, on the following grounds:—

(1.) The history of patient's children (two deaths at three months and one still-birth, all within the last six years).

(2.) The number of cranial nerves involved.

(3.) The nocturnal character of the headache.

(4.) The characters of the iodic eruption.

For the first few days the patient was given the following pill:—

R.—Hydrarg. perchlor., gr. ij.

Ext. cinchonæ, 3 i.

H. pil. xxiv. Sig.—Two daily.

Under this treatment there was a distinct improvement in intelligence, and the headache disappeared. The other symptoms remaining unaltered, daily inunction of 1 drachm of mercurial ointment was begun on 30th January. The congestion of the eyeball then diminished rapidly, as did the inflammation of the nose and the discharge therefrom. For some time the glandular swelling also diminished, but on 18th February it increased in size to a considerable extent, and the skin over it became inflamed. Up to 20th February neither paralysis nor anæsthesia had been at all affected by the treatment.

From this date onwards there was no further improvement. The glandular swelling in the neck, enlarged yet more, softened in the centre and was opened, giving vent to a considerable quantity of unhealthy pus. The incision did not heal, and there was a constant purulent discharge.

In March the right eye became the seat of an acute inflammation of the cornea and iris, which resulted in complete loss of sight. The general health, meantime, did not show much alteration, although the patient became somewhat thinner and weaker. He remained in much the same condition until the evening of 5th May, at 9 P.M., when he suddenly became unconscious, passed into a state of profound coma, and died at 10.40.

Post-Mortem.—*Head.*—The convexity of the brain presents nothing remarkable. In removing the brain, considerable adhesion to the dura is discovered. The adhesions are almost limited to the right side, being as follows:—The optic commissure is adherent in the sella turcica, and the pituitary body seems to be involved in adhesions and new-formed tissue. The right temporo-sphenoidal lobe is adherent on its internal and inferior surfaces. The pons is adherent on the right side, and there is softening and some hæmorrhage visible on its surface; whilst on section a grey tumour-tissue is visible in the form of a more or less rounded nodule three-eighths of an inch in diameter, extending into the substance of the pons for about a quarter of an inch. The left lobe of the cerebellum is also adherent, and somewhat softened on its under surface. The corresponding portions of the dura are thickened, infiltrated, and adherent to the bone, which is considerably swollen and softened, so that a needle can be pushed into it in various places to a distance of from half-an-inch to three-quarters of an inch.

Liver.—The right lobe presents at its anterior edge, and at the extreme right, a tumour-mass 2 inches in diameter at the surface of the edge, and $1\frac{1}{2}$ inch from without inwards. It is obviously composed of a congeries of coalesced tumours, whose individual diameter may be in general from a quarter of an inch to three-eighths of an inch. The under surface of this region shows a rounded tumour, consisting of somewhat isolated nodules, some of which extend as far as 2 inches outwards from the tumour. None of these exceeds three-eighths of an inch in diameter. In addition, there are visible at the surface, at wide intervals, a few scattered tumours, mostly of small size, whilst on section there are also visible a few tumours. In the portal region of the liver there is a group of enlarged and apparently infiltrated glands.

The other organs present nothing remarkable, save that the pericardium contains 10 oz. of clear yellow fluid.

On cutting deeply into the right side of the neck, where a suppurative condition is visible, two or three glands enlarged and infiltrated with grey tissue are observed. There is slight enlargement of the mesenteric and inguinal glands.

Microscopic examination of the tumour in the base of the skull proved it to be carcinomatous, originating probably in the sphenoidal sinus.

13. *Chorea treated with Exalgin.*

E. M., a girl, aged 15, was admitted to Ward VII for the second time on 20th December, 1892, suffering from chorea.

Her previous admission was due to the same disease, which she then had for the first time. The attack was much more severe than the present one, and was accompanied by some paresis of the left arm. It affected the left side as it does now. She was treated by arsenic, and, after a stay of nearly three months in the Infirmary (3rd August to 26th October, 1886), was dismissed well.

Her general health has remained good since then, and she was free of choreic symptoms until recently. Four weeks before admission she got a fright, due to a fire, and a week or more afterwards choreic movements began in the left leg and arm. Throughout the attack they have not been very severe. They are worst when she is at rest, and are relieved by work or other occupation. Her bowels are very costive. She menstruated a week before admission, but not for six weeks previous to that.

Both her parents are alive and well, though the mother is delicate. They had seven children, of whom she is the sole survivor. She has no information as to the causes of death of the others.

On examination, the cardiac apex is found to be slightly displaced upwards. There is no murmur. The other organs are healthy, and the temperature and urine are normal.

The patient was treated by exalgin, which she received in increasing doses, as follows:—

Dec. 21,	.	.	.	.	Exalgin, gr. ii, t.i.d.
" 28,	.	.	.	.	Regulate bowels with Carlsbad salts.
Jan. 3,	.	.	.	.	Exalgin, gr. iv, t.i.d.
" 9,	.	.	.	.	" gr. v, "
" 12,	.	.	.	.	" gr. vi, "
" 14,	.	.	.	.	" gr. viii, "
" 16,	.	.	.	.	" gr. x, "
" 18,	.	.	.	.	" gr. xii, "

At this date the choreic movements had entirely ceased. She complained of headache, with giddiness and faintness. The exalgin was therefore stopped until 25th January, when ten grains were given thrice daily, and from that time the doses were gradually decreased. She was dismissed perfectly well on the 30th January.

TWO CASES OF ATROPHY OF MUSCLES OF TRAUMATIC ORIGIN,

Being Extended Notes of Cases shown at a Meeting of the Pathological and Clinical Society, 8th May, 1893.

By DONALD FRASER, M.D.,

Physician, Paisley Infirmary ; Medical Officer, Paisley Burgh Asylum.

J. R., æt. 38, was shown formerly to the members of the Glasgow Pathological and Clinical Society, in March, 1892, as a case of atrophy of the muscles of both arms and shoulders, following an accident which occurred in October, 1889. As bearing on the pathology of the case, it is necessary to give a brief description of the accident. He was at the time engaged oiling some part of the gearing at the top of the well of a hoist, and for this purpose was resting on his knees upon a cross bar, with his arms stretched out in front. While in this position the hoist, which was below him, was accidentally set in motion, and J. R.'s hands, in attempting to stop it, by clutching at the rope with a hand on each side of the pulley, over which it ran, were jammed between the rope and the pulley, the left being most severely pressed on. His arms were, in addition, subjected to a great strain by his resistance, in so constrained a position, to the motion of the hoist. A few minutes before being relieved, he felt very exhausted, and slipped off the cross bar, and rested with his feet on a beam at a lower level, with his hands still held in the same position. In about twenty minutes he was relieved by some fellow-workmen, who, in taking him down, allowed him to fall a short distance, so that the right shoulder-blade received a severe blow from a projecting piece of wood. I give these details because of their bearing on the causation of the subsequent atrophy. Within a day or two of the accident, and when its immediate effects wore off, he felt weakness in his arms, and the atrophy of the muscles was

distinctly observed four or five weeks later. This weakness and wasting went on gradually, until ultimately he was unable to button his clothes, and required to be assisted to dress. In March, 1892, he had, as the effect of some weeks of regular Faradization and massage of the affected muscles, so improved that the circumference of the arms had increased, and the muscles responded more readily to Faradization. As the result probably of exposure to cold, according to his own account, the improvement was not only not maintained, but he got rather worse again. Treatment, which was interrupted, was again resumed, and has been steadily carried on with some good effect, there being more power in the arms generally, though most, if not all, of the affected muscles are still markedly atrophied. Indeed, now fully three and a half years after the accident, it looks somewhat doubtful if there is likely to be much more improvement.

The interest of this case is essentially pathological, and looked at apart from the history, it would be unhesitatingly held to be a case of progressive muscular atrophy, though primarily at least there was muscular strain or bruising, the muscles most affected being those which were most squeezed or strained. But it is difficult to avoid the view that, however initiated, we are now dealing with a nerve lesion of a serious character.

It may be as well here, before discussing the case further, to describe briefly his present condition. When stripped the arms and shoulders are seen to be markedly atrophied. When asked to perform any of the natural movements of the arms he does so in a very awkward manner—*e.g.*, he attempts to bring the arms to the level of the shoulders by giving them a swing. He can pronate better than supinate, but does both with difficulty, and the extensors, as a whole, act more freely than the flexors of the arms. Flexion of the elbow and supination of the fore-arm, although impaired in both arms, are distinctly better on the right side, while the muscles which are concerned in these movements are visibly better developed, and respond more readily to Faradic stimulation in the right than in the left arm, though the Faradic irritability of all the muscles affected is lessened. It is to be remembered in this connection that the left arm sustained the greater strain. It may also be observed that the right infraspinatus muscle, where he received the blow in being relieved, is much more atrophied than the left.

In the same way the left thenar eminence is more atrophied than the right, the rope lay across it, and pressed on it with

great force. He extends both wrists imperfectly, and with difficulty. The muscles chiefly affected are the infraspinatus, deltoid, biceps, brachiales anterior, and supinator longus, though unequally on each side.

In reference to the hands, abduction and adduction are performed fairly well; the interossei are apparently but slightly affected. As indicated above, the right thumb is less atrophied, and while his power of grasping with both hands is fair, it is less in the left, as might be expected. With the dynamometer he registers with right hand 80 lb., and with left 35 lb. Sensation is not, and never has been affected in any way over the arms and scapular regions. Flickering contractions or fibrillation of the muscles in the scapular and pectoral regions are observed, and can be developed by mechanical irritation, though no wrist reflex can be elicited by tapping. Crackling of the joints on movement is a marked feature in his case.

The atrophy, then, as above indicated, is greatest in the muscles most strained or bruised, and it came on in both arms very soon after the accident, and extended to the shoulders within a week or two after it, and was never at any time accompanied by pain or uneasy sensations of any kind.

Although we have not here direct evidence of an ascending neuritis, as in the case which follows this one, we can scarcely escape the conclusion that the lesion must have been propagated to the spinal cord, the spinal changes being thus secondary to the peripheral ones in the muscles and, as I believe, in the brachial plexus as well. In this connection, it may be noted that Erb has shown that in many subjects there is a motor point above the clavicle opposite the transverse process of the sixth cervical vertebra (corresponding anatomically with the cord formed by the fifth and sixth cervical roots), at which Faradization brings about contraction of the infraspinatus, deltoid, biceps, brachiales internus, and supinator longus chiefly, as well as sensations over the shoulders and parts innervated by the medium.* Now these are the muscles chiefly implicated in J. R.'s case, and it appears from the distribution of the muscular lesions that, in addition to the muscular strain, the outer cord of the brachial plexus beyond the origin of the suprascapular nerve must have been injured in the prolonged strain to which both arms were subjected. It is matter of common observation that pressure of the head of the humerus on or near this part of the brachial plexus may produce muscular atrophy. This is exemplified in a case of sub-clavicular dislocation which was sent to me at a late stage

* *Brain*, vol. vi, p. 140.

as one of atrophy of the deltoid, and in which case electrical irritability with some degree of atrophy was observed in those muscles innervated from the outer cord of the brachial plexus, as in J. R.'s case. As bearing on this view, the muscles supplied by the ulnar nerve in J. R. are scarcely, if at all, affected. This is well seen in flexion of the wrists, when the hands are turned towards the ulnar side, from the flexor carpi ulnaris supplied by the ulnar nerve being unaffected, while the flexor carpi radialis supplied by the median is affected.

This case, while held by many who have examined it to be one of chronic progressive muscular atrophy, is one where a consideration of its details raises a doubt as to its exact pathology. I admit that it is difficult to avoid the conclusion that there is a lesion of ganglion cells of the anterior cornua; but if so, I think it would be regarded by Friedrich as one where the spinal changes are to be looked upon as merely secondary, the primary affection being the changes in the muscles. I would also assume that the path to the cord of this influence would be by or through the outer cord of the brachial plexus.

In the *second case* the conditions are more distinctly due to an ascending neuritis.

D. M., æt. 19, eighteen months ago had his hand and arm drawn in between the two heavy wooden rollers of a washing machine. Fortunately the upper roller was not fixed, so that his arm lifted it. In this way the injury was less severe than it might have been. The arm was drawn in as far as about the origin of the deltoid. Though his hand and arm were bruised and swollen, he continued at his work, saying nothing of the accident, and using his left hand as much as possible. There was no skin lesion beyond the evidence of bruising; but, for a few days after the accident, he suffered from a burning sort of pain all over the arm, so that, from his description, there was marked hyperæsthesia of the skin of the arm. He states that the grasping power of his hand gradually became so weak that he could not continue at his work; and now, eighteen months after the accident, he has come into hospital for treatment.

The right hand, as compared with the left, is larger than it should be, and looks somewhat swollen, while the thenar and hypothenar eminences are atrophied. With the dynamometer he registers 25 lb. with his right hand, and 90 lb. with his left. On inspection, the shoulder muscles are seen to be somewhat atrophied, though the arm muscles generally are

not. Careful comparative testing of both arms and shoulders show marked diminished Faradaic irritability of those of the right. This was specially observed of the trapezius pectoralis, teres, supra and infra spinatus, deltoid, biceps, and triceps. Sensation, as to pain, and temperature are distinctly diminished over the whole area occupied by the above described muscles. Thus, a sharp pin carried all over skin of arm and shoulder gives no sense of pain, even as low posteriorly as the angle of the scapula. On the trunk, the area over which this analgesia exists is sharply demarcated by the middle line of the body. This case presents most of the usual signs of a neuritis affecting vaso-motor, sensory, and motor nerve tracts, and I refer to it more in the way of contrast with the case of J. R., where the lesion was so purely motor.

CLINICAL REPORTS FROM THE GLASGOW SAMARITAN HOSPITAL.

By J. K. KELLY, M.D.

II.—MISCELLANEOUS CASES.

3. Laceration of Cervix and Endometritis—Frequent Premature Labours.

On 3rd November, 1892, I curetted the uterus, and repaired a laceration of the cervix. The case was that of Mrs. B., æt. 29, who was admitted on 8th September complaining of pain in lower abdomen, principally in front, and also extending to the back. She had been married for nine years and had seven children, all delivered by instruments. Only the first of these children had reached full time. The others were all born prematurely, and of these premature children only one has survived. During her last pregnancy she had uterine hæmorrhage on three occasions—viz., at the third, the fifth, and the sixth month, and labour had been induced prematurely. She has always suffered from dysmenorrhœa, the pain being originally on the left side only, but of late on both sides.

At her admission to hospital on 8th September, the cervix was found "enlarged, soft; os ragged and irregular; anterior lip covered with large soft granulations; uterus in middle line, anteфлекed; sound passes, $3\frac{1}{2}$ inches; ovaries prolapsed; right ovary and appendages tender, adherent; left ovary and tube matted.

On 9th October it was agreed, at a consultation, that "some operation like Emmet's be performed on the cervix."

On 26th October I confirmed the previous examination, but thought the feeling of matting of left ovary and tube might be due to a scar which crossed the fornix of the vagina, and was continuous with the tear in the cervix. The vagina was considerably relaxed, and I debated whether or not I should perform a colporrhaphy as well, and I am not sure even now that in omitting to do so I did the best for our patient. The operation, however, relieved her considerably; and, after a Hodge pessary was introduced on 16th November, she felt herself quite well, and went away on 19th November.

In regard to this case, I have hardly any doubt that the lacerations both of the cervix and vagina, which occurred at the birth of her first child, were the cause of her subsequent premature labours. The absence of the sphincter action of the cervix during pregnancy must tell especially in the later months. The bleedings during the last pregnancy, which seem to have been so severe as to necessitate emptying of the uterus, were probably from the mucous membrane of the cervix, which I regard as the source of the occasional hæmorrhages met with during pregnancy, and generally considered a sort of menstruation. The pessary I expect to act merely as a substitute for the support that should be given by firm vaginal walls, these walls being in this case too relaxed to afford it. By buoying up the uterus it will relieve the ovaries from pressure, and the ligaments of the uterus from the dragging which a descending organ exerts upon them.

4. Fætid Uterine Discharge, simulating Malignant Disease of Uterus.

Mrs. T., æt. 54, was admitted on 31st October, 1892, with a fætid vaginal discharge of three years' standing, accompanied by pain in the back. Her menstruation began at 13, and she always had dysmenorrhœa. She married at 27, and had three children, the last nineteen years ago. Her menses ceased at 40—fourteen years ago. After her second child she had for three months weekly attacks of fever, which were called ague, but except for that she has always enjoyed good health. The discharge complained of was white in colour till July, 1891, when it became tinged with red. It was always fætid. For a considerable time she attended the dispensary as an out-patient, and was treated with tampons of various kinds without benefit.

On 20th September last "the os was cupped and iodoform

applied." The diagnosis suggested was "malignant disease of the uterus."

I examined her on 26th October, previous to her admission to hospital, and the report in the Journal is as follows:—"Dr. Kelly found a considerable quantity of foetid discharge suggestive of malignant disease, but on per vaginal examination the portio vaginalis is found in the normal senile condition, and there is neither nodulation nor ulceration. The sound passes to 3 inches, gives rise to slight pain, and causes slight bleeding. He recommended the patient to be curetted, with a view to cure if this be simple endometritis, and for examination of the curetted membrane if there is suspicion of malignant disease." This recommendation was agreed to at a consultation on 3rd November, and on 7th November the report runs:—"Under chloroform a large quantity of bluish grey pultaceous matter, with a very foul smell, was removed from the uterus by the curette. Liq. ferri perchloride was applied to the interior after this was removed." No tissue whatever was scraped away, and the opinion I formed was that the matter removed had simply been deposited on the mucous membrane, and retained on the uterus until it had undergone a putrid decomposition somewhat like the matter in a bronchiectatic cavity or in a pulmonary vomica. This opinion I would not hold very firmly, although it seems to be confirmed by the subsequent course of this case. After the curetting there was complete absence of foetor, and no discharge perceptible to the patient herself.

She left hospital on 13th November, with directions to return for a time every second day for an intra-uterine douche. On 23rd November, I examined her on one of these occasions, and reported, "This morning there is still a slight brownish discharge from the uterus on introducing the sound—quantity about half a drachm, but no foetor whatever." The general condition of this patient has also greatly improved, and she is free from pain.

Dr. Howie reports that on 6th December the patient ceased attending, the discharge and pain having entirely gone.

5. Cancer of Breast, with Massive Affection of Axillary Glands—Operation in unfavourable conditions—Undisturbed course of Healing.

Mrs. S., aged 48, was admitted 9th November, 1892, with two large swellings—one in the right mamma, first observed eighteen months ago; the other in the right axilla, first seen

twelve months ago. The tumour in the breast presented the usual characters of scirrhus—hardness, irregular surface, retraction of nipple, stabbing pains—and was movable on the subjacent structures. The tumour in the axilla occupied the larger part of that space, was also hard in texture, and with a nodulated surface. It was less movable than the mammary tumour—indeed, when she was first examined at the Dispensary it was thought that it might be attached to one of the upper ribs. On careful examination, however, its mobility was distinctly made out. The absence of free mobility we thought might be due to the effect of some “boils” which had formed in the axilla, and discharged pus about the time this axillary tumour was first observed. It was decided that the tumour should be removed. There were, however, several things in the woman’s condition that caused us some anxiety. (1) She had been subject to severe bronchitis for several years, and had considerable catarrh when she came into hospital—is, in fact, not yet free of it. (2) About two months before coming here she had a severe illness—rigors, severe axillary pain, severe stitch in right side interfering with respiration. This illness had laid her up for a month. We regarded it as a pleurisy, and accordingly the question arose—Was it of a cancerous nature and connected with the tumour in the chest wall? We inclined to answer this question in the negative, on account of the absence of signs of pleural effusion when we examined her here. We considered that if the malignant disease had reached the pleura two months before the physical condition within the thorax would have presented much more harassing characters. (3) She had rheumatic fever twelve years ago, and her feet occasionally swell. Dr. Howie thought he detected a V.S., and at another time an aortic murmur; but whether or not a valvular lesion existed, the heart sounds were indistinct and rather feeble, and the heart’s action was easily disturbed, so that we thought it probable the heart wall was degenerating. (4) She had severe gastric symptoms—frequent nausea and vomiting and pain after food—and though we could detect no tumour of the stomach, and there was no history of dark vomit, the presence of malignant disease in the breast naturally made us think of malignant disease in the stomach as well. We thought, however, we found a simpler explanation of her gastric troubles in her habit of taking alcohol, though this, of course, she admitted in only a qualified way. For all these reasons she was a bad subject for any severe or lengthy operation, and it was evident that the removal of the two tumours would occupy a considerable

time. By using the Junker inhaler, however, the amount of chloroform administered was only $2\frac{1}{2}$ drs., and one element of danger was thus considerably lessened. Another fortunate circumstance was that the amount of blood lost during the operation was very slight, and she did not suffer in the slightest degree from shock after it.

The operation was performed on 17th November, and is thus reported by Dr. Howie:—"The tumour in the right mamma was removed by two semicircular incisions—one above and one below the nipple. The incision was continued up towards the axilla, and the enlarged axillary glands were carefully dissected off from axillary walls. Some of them were very close to the axillary vessels, and were carefully dissected off with the scalpel and the fingers. There was very little hæmorrhage, and only a few vessels had to be ligatured. Iodoform gauze was packed into the axilla. The edges of the wound were united by catgut sutures. Drainage was secured from the lower end of the axillary wound. Dressings of iodoform, iodoform gauze, and salicylic wool, with bandage outside."

On 20th November the outside dressings, which had become soiled, were changed, and on 25th November the whole dressings were removed and fresh gauze and wool applied.

On 2nd December the wound was found completely healed, except at the lower part of the axilla where the gauze drainage had been inserted.

UNUSUAL VARIETIES OF ECTOPIC GESTATION.

By H. MICHIE, M.B., C.M.,
Surgeon to the Samaritan Hospital, Nottingham.

(*With Two Plates.*)

OF all that has been said and written on the subject of ectopic gestation, much has been somewhat speculative, and in several points our knowledge of the process still remains uncertain. In the course of practice we still meet with cases that tend to upset some, though at the same time they may confirm other generally accepted notions. In this respect three cases that have recently come under my notice appear to me to be unusual in certain particulars, and on that account worth recording.

The first is that of a Mrs. P., 32 years of age, the mother of two children, the last child being born in January, 1891. Menstruation—which had always been somewhat irregular, the intervals being often six weeks in length—recommenced four weeks after the labour. At the end of April, 1892, that is, fifteen months after the birth of the last child, after having missed eight weeks, the patient had slight intermittent pains accompanied by rather profuse loss of blood and discharge of several pieces of “skinny-like material.” The loss, however, ceased in two or three days, and from that time menstruation continued to be regular up to the middle of August, when she first consulted me. At this time she complained of uneasiness in the pelvis with slight pain on defæcation, especially when the bowels were constipated. Behind the uterus on the left side there was a swelling, slightly tender, with a feeling of fluctuation in parts, and movable to some extent with the uterus, which itself was less movable than usual, and pressed forward against the pubis. There were none of the usual signs of pregnancy. By 17th September there was no change; and an exploratory incision was proposed, and performed five days later. On introducing my fingers into the pelvis I found a cyst about the size of a small cocoa-nut situated on the left side and intimately adherent to the back of the broad ligament and the uterus. I tapped and emptied the cyst of its contents, which consisted of thick dark coloured blood. The greater part of the cyst wall, along with the Fallopian tube and the ovary, I removed with scissors, but that part adherent to the broad ligament was so firmly attached that it was left behind. The pelvic cavity was washed out and drained. For a time a considerable quantity of blood was withdrawn from the drainage tube, but the bleeding soon ceased, and the drainage tube was removed at the end of two days. The further progress of the case was uneventful, and the patient was discharged three weeks after the operation.

The parts removed were photographed, and are represented in Plate I, Fig. 1. The cyst (*B*), the right Fallopian tube (*U-F*), and the ovary (*O*) were intimately adherent to each other, and were bent backwards and to the left, so as to lie behind the uterus and the left broad ligament, the cyst being most intimately attached to the fimbriated end of the tube (*F*) and the back of the left broad ligament. The gap in the cyst wall, seen in the photograph, is due to that part which was adherent to the broad ligament, being left behind, as stated in the account of the operation. Microscopic sections

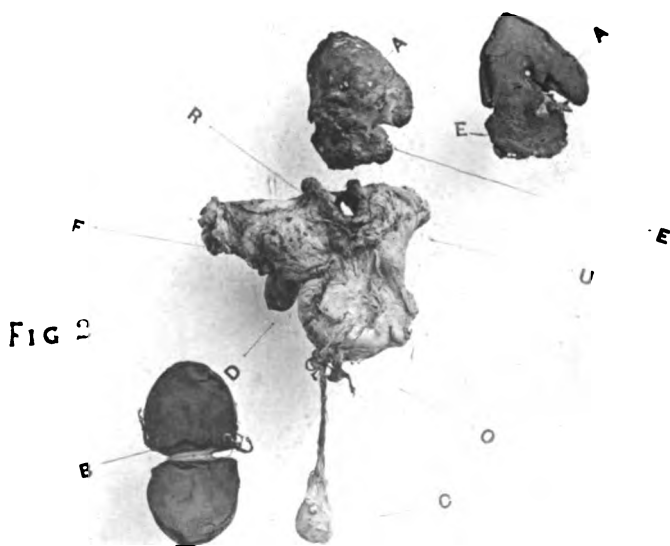
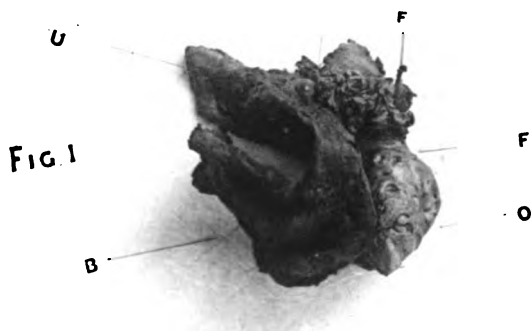
of the cyst wall showed chorionic tissue, with the cells undergoing fatty degeneration.

On thinking over what may have been the course of events in this case, and taking into account the fact that there was no evidence of rupture before the operation, and that no signs of such an accident could be detected on examination of the parts removed, it appears to me that impregnation took place either close to the fimbriated end of the tube or among the fimbriæ themselves; that the ovum there became attached and continued to develop up to the end of the eighth week, when death of the embryo took place, as indicated by the intermittent pains and the discharge of blood and pieces of "skinny-like material" (decidual membrane?); that the placental structures, instead of being digested and absorbed by the peritoneum, or of giving rise to suppuration, as is usual, continued to live, but remained quiescent.

An alternative view might be that impregnation took place in the outer end of the tube, and that at the end of the eighth week what Bland Sutton terms "tubal abortion" occurred, the placental structures obtaining a fresh attachment to the fimbriated end of the right tube and the back of the left broad ligament. Against this view, however, is the fact that there was no evidence of internal hæmorrhage at any time, which one would expect to find in such an event.

The history of the second case differs somewhat from that of the preceding, and corresponds more closely to the usual history of an ectopic gestation. The patient was a married woman, 38 years of age, who had had eight children and one miscarriage, the last child being born at the end of term in October, 1890. Up to the commencement of the illness in question the menstrual history contained nothing unusual. Menstruation recommenced nine months after the birth of the last child, and was regular up to the end of October, 1891—the period having ceased on the 24th of that month—after which, for about three months, she had amenorrhœa. On 16th January she was suddenly seized with agonising pain in the right iliac and upper hypogastric regions, became pale, and was supposed to be dying. The severe pain lasted for about twenty-four hours, and she was confined to bed for two days. Five days afterwards she had a similar attack of even greater severity, accompanied by sickness and a profuse discharge of dark coloured blood from the vagina, lasting for about half an hour. The next day there came away what she described as "a ragged fleshy-looking substance" of a triangular shape, about 2 inches long and $1\frac{1}{2}$ inch wide at its

PLATE I

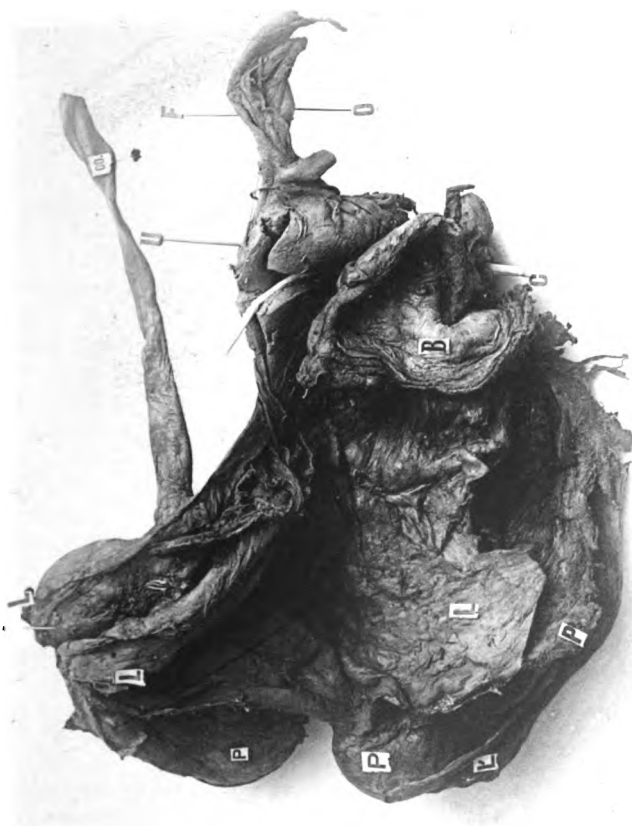


Scale in inches

1 2 3 4 5

ELECTRIC PHOTO-PRINTING CO. NOTTINGHAM.

PLATE 2



Scale in inches

base. A third and less severe attack of pain in the lower abdomen occurred three days later. From 5th March to the end of November, 1892, when she first came under my notice, menstruation was regular but scanty, and preceded and accompanied by pain. At that time (November, 1892) she complained of pain in the lower abdomen, especially in the right iliac region, much aggravated by any exertion. On pelvic examination the uterus was found to be fixed, and there was a tender, hard, immovable swelling in Douglas's pouch, most marked on the right side. My diagnosis was— inflammation with occlusion and distension of the Fallopian tubes, probably originating in a previous tubal gestation that had ruptured into the broad ligament and become absorbed. On 1st December abdominal section was performed, when the right tube was found to be enlarged and adherent to the back of the broad ligament and the uterus. From an irregular rent on the dorsal aspect of the tube projected a dark green coloured body like blood clot, and about the size of a walnut. This was picked out, and the tube, along with the ovary, then removed in the usual manner. The left appendages being diseased were also removed, and afterwards a second body of a similar size and clot-like appearance was fished out of Douglas's pouch, where it was adherent, though not firmly so. The patient made an easy recovery.

The parts removed from the right side are represented in Plate I, Fig. 2. The Fallopian tube (*U-F*) was thickened, its fimbriated end closed, and presented on its dorsal aspect, at about the junction of the inner and middle third, an irregular rupture (*R*), from which projected a dark green coloured body (*A*) like encapsuled blood clot, and about the size of a walnut, the lower third of which (*E*) was contained in and adherent to the tube. In the figure it is represented in section, showing the outer surface on the right, and the cut surface on the left immediately above the rupture. Projecting from the posterior layer of the mesosalpinx was a fatty outgrowth like an appendix epiploica (*D*). A small cyst (*C*) was attached to the ovary by a long pedicle. The ovary (*O*) was adherent to the tube. The body removed from Douglas's pouch is shown in section (*B*). Microscopic sections of the substance (*A*) removed from the tube showed old blood clot and what appeared to be chorionic cells undergoing fatty degeneration. The substance (*B*) removed from Douglas's pouch was composed entirely of encapsuled blood clot. Between the layers of the left mesosalpinx was a fatty tumour about the size of a pigeon's egg.

Owing to the great length of time the specimen had been

exposed to the action of the peritoneum, and consequent alteration in its structure, there may be a little doubt as to its exact nature, but judging from the early history and the appearance of the parts removed, the evidence to my mind seems fairly conclusive that this was a case of tubal gestation, where primary rupture into the peritoneal cavity took place at the end of the third month, and that, contrary to the usual course of events following such an accident, the patient neither succumbed to hæmorrhage nor to a suppurative peritonitis set up by suppuration of the sac. Of course, it might have been that she would ultimately have died from a suppurative peritonitis set up by the disease; still, there were at the time of operation no signs of such an event taking place.

The third case is one of so-called abdominal pregnancy. Early in February, 1892, I was asked by a lady to see her servant, who had been taken suddenly ill with violent pain in the abdomen, accompanied by pallor and some degree of collapse. There had been amenorrhœa for fourteen weeks, and the patient admitted the possibility of pregnancy. The abdomen was moderately distended, tender, and slightly tympanitic. The pulse was accelerated, and the temperature raised. On vaginal examination the uterus was found to be displaced over to the left by a soft, boggy, immovable tumour, occupying rather more than the right half of the pelvis. I concluded that it was a case of tubal gestation that had ruptured into the right broad ligament, and advised rest in the hope that in time absorption would take place. Next day the acute symptoms having passed off, the girl was sent home to her friends in the country to rest. In order to keep the case in view, I asked her mistress to try to persuade the patient to show herself to me from time to time, but unfortunately she was lost sight of, and I saw no more of her till the beginning of June, exactly nine months after the cessation of menstruation, when I found her amongst strangers, in miserable surroundings, married, but the husband in prison. She was suffering from puerperal convulsions, with complete coma in the intervals. The limbs were œdematous, and the abdomen distended with fluid. The child, in all its parts, could be distinctly felt through the abdominal wall, could be easily pushed to any quarter of the abdomen, and was evidently free in the peritoneal cavity. The pelvis was occupied by a large boggy immovable mass, the uterus, slightly enlarged, being pushed upwards and to the left. The bladder was empty. She died next morning.

At the *post-mortem*, five hours after death, the child was

found free in the peritoneal cavity, which was full of ascitic fluid, there being no trace of any investing membrane. The umbilical cord passed downwards to the posterior surface of the mass in the pelvis. The uterus, with the bladder in front, was situated in the left anterior portion of the pelvis, the left tube and ovary being free. No trace of the appendages of the right side could be detected. Except on the left side, the reflexions of the broad ligament were raised to nearly the level of the pelvic brim, both behind and in front, gradually dipping deeper towards the right side of the pelvis. The whole of the pelvic contents, except the rectum, were removed *en masse*, along with the child, and are represented in plate 2. The child, a female weighing seven and a half pounds, was well developed and nourished.

On examination of the specimen after removal, it was found that the whole of the placenta (*P*) was contained in a cavity bounded above by the opened up layers of the broad ligament (*L* and *L'*), and below by the floor of the pelvis. It was, therefore, wholly extraperitoneal; the umbilical cord (*CO*) passed to the placenta through the upper portion of the posterior layer of the broad ligament. Under the broad ligament in places a distinct layer of compact connective tissue could be made out, probably the remains of the amniotic sac. No trace of secondary rupture could be discovered. This is, however, just what one would expect, for a rent in the peritoneum would heal up almost at once. The cavity of the uterus (*U*) measured four inches, and contained no decidual membrane. The right Fallopian tube could be traced for only a very short distance, becoming spread out and lost upon the upper surface of the placental mass. The right ovary could not be discovered. Large veins entered the placenta from the side of the uterus. The appendages of the left side (*F* and *O*) presented nothing unusual. The utero-vesical pouch was well marked.

This case, then, eminently supports the views propounded by Lawson Tait in respect to the pathology of ectopic gestation, and, I believe, corresponds exactly in its anatomy to the well known case of Jessop's; for, though Mr. Jessop speaks of the placenta as being seen covering the inlet of the pelvis like the lid of a pot, and having an attachment to the large bowel and posterior abdominal wall, I have little doubt but that a dissection of the parts would have shown that the placenta was situated wholly outside the peritoneum. Happily, however, the successful issue of the case prevented this minute examination. The sequence of events in both cases I take to

have been—tubal gestation, primary rupture into the broad ligament, secondary rupture of the broad ligament, and escape of the foetus into the peritoneal cavity, the relations of the placenta being left undisturbed. The period at which secondary rupture took place is the missing link in the history of the present case, and it is a matter of great regret to me that I was not able to keep it in view, both for the sake of obtaining a fuller history and that I might have had timely opportunity of being able to afford a chance of rescue.

I am inclined to believe that the proper treatment for such a case would be to remove the child by abdominal section, cutting the cord close to its placental attachment; to close the abdomen without employing any drainage, in the hope that the placenta might be absorbed; and, in the event of any signs of suppuration arising, to reopen the abdomen and drain the cavity of the broad ligament; or better still, if it were possible—and this could always be determined at the primary operation—to open up the cavity of the broad ligament from above, and drain without opening the peritoneal cavity.

EXPLANATION OF PLATES.

PLATE I, FIG. 2.

- U.* Uterine end of Fallopian tube.
- F.* Fimbriated end of Fallopian tube.
- B.* Gestation sac.
- O.* Ovary.
- A.* Remains of some adhesions.

PLATE I, FIG. 2.

- U.* Uterine end of Fallopian tube.
- F.* Fimbriated end of Fallopian tube.
- R.* Rupture of tube.
- D.* Fatty outgrowth.
- O.* Ovary.
- C.* Cyst.
- A.* Projecting part of clot-like body.
- E.* Lower part of same contained in tube.
- B.* Clot-like body removed from Douglas's pouch. Shown in section.

PLATE II.

- P.* Placenta.
- L.* Anterior layer of broad ligament.
- L.* Posterior layer of same.
- CO.* Umbilical cord.
- U.* Uterus.
- C.* Cervix. Wax taper passed through cavity of uterus.
- B.* Bladder.
- F.* Left Fallopian tube.
- O.* Left ovary.

A CASE OF MYXŒDEMA, WITH INSANITY, TREATED BY THYROID FEEDING AND THYROID EXTRACT.

By HAMILTON C. MARR, M.B., C.M.,
Assistant Medical Officer, Woodilee Asylum, Lenzie.

MRS. J. K. or D., aged 51, housewife, was admitted into Woodilee Asylum on 24th March, 1888.

History.—Patient, who had been complaining of bodily weakness, ever since the menopause—that is for four years—had to take to bed about Christmas of 1887 on account of this failure of strength. About this time also symptoms of mental aberration showed themselves. Her mental condition, according to her son's statement, was only bad at night; she was quite well in this respect throughout the day. On 18th March, 1888, feeling herself a little stronger, she went out alone to chapel. While in chapel she fainted, was carried to the Northern Police Station, and thence to the Royal Infirmary. The following is an extract from the case-books of the Royal Infirmary about her condition at this time:—"Her face looks puffy, it does not pit on pressure; her legs are swollen; the skin is dry and scaly; she speaks with a slow, monotonous articulation. The heart and lungs are normal; the urine is non-albuminous." Owing to her mental condition she was transferred to Woodilee Asylum on 24th March, 1888. On admission, she was very excited and violent in her behaviour to those around her. Her language was incoherent and she had delusions—thus, she accused the nurses in the Infirmary of stealing a bag of gold and other valuable things belonging to her. Her bodily health was very feeble. She was so weak on her legs as to require support; the tongue was slightly furred, the pupils unequal; speech slow, and with a slight drawl or slur. Round about the eyes there was œdema, the face was swollen, and the complexion white and waxy-looking. The urine contained no albumen. She was recognised as a case of myxœdema. From admission till now the myxœdematous condition has progressed slowly. Periods of maniacal excitement were very frequent in one of these; shortly after admission, she got very excited, and tore her bedding. She refused food, and required to be fed by the stomach tube. In the intervals between these fits of excitement the patient was very dull, would sit on a chair near the fire, and speak to no one. She was liable to attacks of sickness. During these her appetite got very bad, and she would vomit

any food she might have taken. Immediately after one of these sick turns on 31st August, 1888, she went into an apparently unconscious state, and was insensible to slight degrees of pain. As the bodily illness increased the fits of excitement were not so violent, and the intervals of dulness between them considerably prolonged. About the end of last year these excited fits gave place to periods of greater depression than usual, during which the patient only got angry when irritated by some person in some way. Just before treatment commenced she had to take to bed altogether, on account of the increased bodily weakness.

Previous Health.—Beyond what was evidently an attack of chlorosis at 18 years of age, the patient states that she has had no illness.

Family History reveals nothing important. She married at 19, had twelve of a family—nine boys and three girls. She had one miscarriage.

Present Condition (17th February, 1893).—The temperature, which was taken for one week, thrice daily, previous to beginning treatment, averaged 96·2° F. The lowest temperature registered was 95·2° F., the highest 96·4° F. The face is pale in colour and waxy-looking; it is devoid of expression; wrinkles are absent from it. Transverse wrinkles only are present on the brow. There are venous stigmata on the cheeks. The nostrils are much thickened and swollen; the lips large, drooping, and slightly livid; pupils are unequal. Hearing is dull; she must be spoken to loudly. She cannot hear a watch tick with the right, and only slightly with the left ear. Weight, 9 st. 2 lb.; height, 5 ft. 2 in. The whole body is swollen. This swelling is specially noticeable on the face and hands; it does not pit on pressure. There is slight œdema round the eyes and at the ankles, which pit on pressure. The thyroid cannot be felt, nor is there pain complained of in this region. The skin is dry and roughened by large epidermic scales. Perspiration is absent from all parts of the body but the head. The patient says that the sweat here is "cold and bad smelling." The hair is very scanty; it is present only on parts of both frontal and temporal regions; it is short, thin, and brittle. Owing to bodily weakness she can only get out of bed a few hours during the day. When up she can do no work; walking across the ward is sufficient to fatigue her. She sits close to the fire even in hot weather, and in a warm room, as she "always feels cold." She appears to take no interest in anyone or anything around her; only gazes stupidly at the fire. When spoken to she either becomes angry and

strikes at the person speaking to her, or she answers questions in monosyllables. She still has delusions about her wealth, and states that everybody robs her of valuables.

The heart's action is slow and weak; pulse beats 60 per minute, is moderately full, and easily compressible.

Respiratory system normal.

Digestive.—The gums are swollen and overlap the teeth in some parts; the teeth are loose; the inside of the cheeks is swollen; tongue large, flabby, and shows the marks of teeth. It is covered behind and in the centre by a slight white fur. The saliva is thick and tough; appetite bad. She is liable to attacks of sickness, when she vomits any food that she may have taken previous to the sick turns.

Bowels slightly costive; motions normal.

The urine contains no albumen.

Treatment and Progress of the Case.—Treatment by thyroid preparations was commenced on the 18th February last. One quarter of a whole gland, taken from a sheep just after it had been killed, was given mixed up with some bread-crumbs, and mixed with two ounces of sherry. It may here be noted that this amount of sherry was given daily for some time before treatment commenced, and had not the slightest effect on the temperature. The treatment by fresh glands had to be discontinued after three weeks, as I was unable to obtain them readily. A glycerine extract of thyroid prepared by Thomson, chemist, Hillhead, was then used. Two ounces of this extract contain one whole sheep's thyroid; the dose given was one drachm thrice daily. This preparation was examined microscopically by Dr. Fred. Pollock. The effects of both preparations of thyroid were similar. After the first time the gland was given the temperature rose to 97.5° F.; the pulse beats were 81 per minute; the respirations were not affected. The temperature was taken thrice daily during the course of treatment; it remained pretty uniform throughout. The lowest temperature registered was 97° F., the highest 101.6° F., the mean was 98.2° F. The pulse averaged 90 beats per minute. The respirations remained at 20. Bad effects were noticed on three or four occasions. Then the patient complained of severe headache, muscular pains all over the body, and she was liable to get excited. These bad effects were, as a rule, coincident with the digestive disorders to which the patient was subject, and disappeared with their disappearance. The patient gradually improved under treatment. She was able to get up out of bed for the most part of the day. After any exertion she sweated all over the body, though perspiration was still

chiefly confined to the head. The bald parts of the head got covered with downy hair; now the hair in these parts is about an inch long. The remainder of the hair has grown longer, and has taken on a healthier appearance. The roughness of the skin gradually disappeared, till now it is quite smooth. The swelling of the body has gone down; the hands, face, legs, and feet are not now swollen. On the two former freckles have appeared. Hearing has improved slightly. Her weight is now 7 st. 4 lb. She has thus lost during treatment over one stone in weight, though her diet was more nourishing and digestible, and her appetite, if anything, better. She is now feeling much stronger; is able to walk about in the grounds a great part of the day; assists the nurses in their daily work; is able to sew and knit. She can converse quite intelligently, is very cheerful in disposition, and is anxious to get home to her family, about whom she could give no account before she was submitted to treatment. Whether the improvement will be permanent time alone shall show. I believe that the administration of thyroid preparations must be continued throughout the remainder of her life. The function of the thyroid gland is in abeyance, and its function being necessary for a healthy maintenance of body, requires the substitution of the thyroid preparations.

I have to thank Dr. Blair, the Medical Superintendent, for permission to treat the case.

REVIEWS.

Outlines of the Diseases of Women. By JOHN PHILLIPS, M.A., M.D. (Cantab.), F.R.C.P. London: Charles Griffin & Company, Limited. 1893.

A Treatise on Gynæcology, Clinical and Operative. By S. POZZI, M.D., Professor in the Faculty of Medicine (Paris); Surgeon to the Lourcine-Pascal Hospital. Vol. II. London: The New Sydenham Society. 1893.

WHEN an author designates his work as "Outlines," he disarms criticism by confessing imperfection. Outlines of diseases "written for the student and junior practitioner" should naturally have the distinctive features of the diseases boldly and graphically drawn, and should end there. When the

writer proceeds farther to introduce light and shade and colour, his work ceases to be merely outlines; it becomes a picture. But a picture is true only when the details are faithfully filled in—when, for example, the subtle variations which even the best defined and simplest disease may undergo, are faithfully traced.

It is at all times difficult for an author who sets himself to “outlines” to resist the temptation to fill in the picture, and it is especially difficult in gynæcology, where outlines are mostly indistinct, and only colour and shade give character to disease. This department of medicine has hardly yet reached the scientific clearness which can permit it to be outlined. Where it can, as in the case of uterine and ovarian tumours, it is surgery rather than gynæcology.

It is chiefly in this respect that Dr. Phillips’ book fails to be satisfactory. It is too full for “outlines”; too sketchy for a “treatise.” Much debateable matter is introduced, and is very inadequately discussed. On many points of pathology, diagnosis, and treatment we would differ from him, but the student or junior practitioner might quite safely be left to follow the guidance of Dr. Phillips so far as he goes in this book. In doing so he would become acquainted with the ideas and, we might say, the prejudices of the London school.

In spite of its bulk, we would recommend the student and junior practitioner, in preference to the little book of Dr. Phillips, to read the *Gynæcology* of Professor Pozzi, of which the second volume has been issued by the Sydenham Society. This is professedly a “treatise,” and discusses the various diseases of women with satisfactory fulness. At the same time it supplies the student with references to sources of information, where he can for himself exhaust the present knowledge of the subject.

We have already, in speaking of Vol. I (April, 1893), expressed our opinion of the author and his work, and we continue to regret that the translation for the Sydenham Society does not reach a satisfactory standard either of accuracy or of style. The reader must constantly remember that he is reading a translation, and ascribe any obscurity of meaning or apparent contradiction to this fact. The language of Pozzi himself is marked by quite limpid clearness.

To show how translators can travesty an author’s meaning, we may take one example out of many:—Pozzi expresses a well-known fact, a fact stated over and over again, and nearly in the same words by the gynæcologists of our own country, when he says:—“Every gynæcologist has had the opportunity

of observing marked displacements in women who present no diseased symptom whatever." His translators make him say the very opposite of this in a sentence that may serve as a sample of their ordinary clumsy English—an English which is really French in English words:—"There is not a single gynæcologist who has had the opportunity of observing any marked displacement in a woman who did not present besides some other symptom of disease." Who will translate the translators?

A Text-book of Medicine for Students and Practitioners.

By DR. ADOLF STRÜMPPELL, of Erlangen. Second American Edition translated by H. F. VICKERY, M.D., and P. C. KNAPP, M.D., with Editorial Notes by F. C. SHATTUCK, M.D. London: H. K. Lewis. 1893.

IN our issue for September, 1887, page 205, we noticed the publication of the first American edition of this work, and the favourable opinion we then expressed has been confirmed by the appearance of the second edition of so large a work in so comparatively short a time. It also deserves to be known that the work has reached its sixth edition in Germany, and that notwithstanding the circumstance that the fifth, issued the year previous, was very large. In the sixth edition, from which the present work has been revised, an entirely new chapter on Influenza has been incorporated, and important changes and additions have been made in the sections on Cholera, Malaria, Diseases of the Nose and Larynx, Syngomyelia, and Diabetes. As is always, perhaps unfortunately, the case nowadays, the bulk of the present volume has been increased by some fifty or sixty pages. It is seldom that a translated work has the success which this one has achieved. We think the success well deserved, and we again heartily commend the volume.

Notes on Medicinal Remedies. By J. B. STEVENSON, M.P.S., Ex-president British Pharmaceutical Conference. London: Baillière, Tindall & Cox. 1893.

THIS little book, which is intended for the general public, is full of the most interesting information upon the subject indicated in its title, and we have no wish to dispute the view expressed in the preface that it is "desirable that educated and intelligent persons should possess" such information. We feel, however, that, when the notes have served

their educative purpose, there their usefulness will end. Popular works on medicine very often supply the "little knowledge" which is "a dangerous thing," but they do most good or least harm when they are written so as to give readily grasped descriptions of minor ailments with any directions as to regimen and very simple medication. It requires no great stretch of the imagination to picture the harm which might result from a layman acting upon such information as he finds in a popular treatise on all manner of drugs, such as that now under notice. He reads, for example, that various preparations of opium are used in cases where cough is troublesome, but he cannot be expected to discriminate between the cough of phthisis and that of capillary bronchitis or pneumonia. It is true that caution is fully insisted upon, but there must always remain the contra-indications and idiosyncrasies which an amateur prescriber cannot understand.

Mr. Stevenson does not profess to give full details, but such as are mentioned seem on the whole most reliable; it must surely be an oversight that no notice is taken of the necessity of shaking medicines containing hydrocyanic acid, such directions being given for much less important mixtures.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1892-93.

MEETING XIII.—5TH MAY, 1893.

PATHOLOGICAL SECTION.

The President, DR. JOSEPH COATS, in the Chair.

I.—DERMOID CYST OF THE TESTICLE.

BY MR. HENRY E. CLARK.

Mr. Clark showed, as a fresh specimen, the tumour from a case of scrotal inclusion or dermoid cyst of the testicle. It will be reported on more fully on a future occasion, and was presented at this time in order that members might have an opportunity of seeing it before further dissection. The disease

was so extremely rare, Mr. Clark said, that he could remember only one other case having been shown in Glasgow—by Dr. Macewen in 1878. He had served upon a committee which had investigated that case. Curling, the authority in this country on testicular disease, stated that he had never had the fortune to see a case.

The patient, in the present instance, was a child 13 months old. A fortnight after birth it had been noticed that one testicle was distinctly larger than the other, but it was only when the age of 12 months was reached that any enlargement took place such as to cause apprehension. Aspiration had been performed by the doctor in attendance, and some fluid, like thick mucilage, withdrawn. On seeing the case, Mr. Clark had been reminded of Dr. Macewen's, and, after consultation, had removed the tumour. Even before operation, it had been recognised that testicle and tumour formed a single mass. On cutting into it they had found a cyst containing white gelatinous material, like white-currant jelly, and showing under the microscope large numbers of epithelial cells of various shapes and sizes, some granular, others non-granular, and all definitely nucleated. (Specimen shown under microscope). This epithelium was not such as occurred normally in the testicle, and thus the suggestion that the tumour was a dermoid cyst received support; it was further confirmed by their finding some cartilage, three teeth, and what looked like bone. After his investigation of the case was completed he would bring it up again; one point which he specially wished to examine into was as to whether there were any testicle remaining, because in most of the other cases recorded the testicle had been found easily distinguishable from the tumour.

II. — PAPER ON PARASITIC PROTOZOA IN CANCER.

BY DR. JOHN LINDSAY STEVEN AND DR. JOHN BROWN.

The text of this paper, with the illustrations, will be published in the *Journal of Pathology*, No. 1, vol. ii, Autumn, 1893.

A large number of illustrative drawings were shown, and several specimens placed under the microscope.

Dr. Auld was able, from the study of sections which he had himself made, to agree with the views expressed in the paper. He thought that the state of the nucleus in cancer cells, in which the suspected parasite was found, should be carefully examined, especially as *Ruffer* said that it bred first

of all in the nucleus and then swarmed out into the protoplasm. Then, again, the protoplasm in some of the cells was left only as a rind; had the original protoplasm just been pushed aside and atrophied, or had it entered into the composition of the parasite? In a non-cancerous tumour he had examined lately, he had found in certain parts, especially at the borders, a red body with a nucleus in almost every cell; and in some of those places it had been evident that degeneration was going on. The nuclei of the cells had been intact, but there had been no evidence of nucleoli. It was just possible that the nucleoli had been extruded from the nuclei and had appeared in the protoplasm of the cells, especially as in other parts he had not been able to see any red bodies in the protoplasm, and there the nucleoli had been distinct. It was thus very important that the nuclei and the protoplasm should be very carefully examined.

Dr. Steven had seen vacuoles; the point might be raised as to whether they were vacuoles or the commencement of protozoa.

Dr. Workman, in the main, entirely agreed with the views expressed in the paper. He thought that for the present they must remain in a state of grave doubt as to the characters of the bodies under discussion, and as to their pathogenic properties—i. e., as to whether they were the cause or an accidental accompaniment of cancer. There were several points which inclined him to the view that they were an accidental accompaniment. (1) In the first place, they found in cancers where those bodies were present that there was but little irritative action produced, and that leucocyte infiltration was remarkably absent. (2) Then there was the fact, which seemed to him to be established, that in some cases bodies which closely resembled those were to be found in non-cancerous diseases. He was convinced that he had seen bodies very closely resembling those (though he could not say that they were exactly the same) in a case of lupus of the nose with epithelial proliferation, suggestive of its taking on an epitheliomatous character. (3) Further, the number of those cells found was greatest in cancers of old standing, whereas, if they acted as cause, one would have expected them to be as numerous, or possibly more so, in an early stage. (4) Again, it was very remarkable that those bodies should show such an enormous variation. In this respect they differed entirely from vegetable pathogenic micro-organisms. This variation Dr. Workman illustrated by reference to the plates in a recent article on the subject in the *Centralblatt f. Bacterienkunde*. The view was

naturally suggested that not one but many species were present.

On the other hand, there was the fact that in the cells where those organisms were found they often found that mitosis was taking place in the nucleus. This was a proof that the cell was actively living, and yet in it they had (if Virchow's view was right) an endogenous formation of daughter cells going on at the same time in the protoplasm. That was one of the chief difficulties in accepting this theory of Virchow's (that these organisms were daughter cells), as it would imply two forms of multiplication in one and the same cell going on at the same time.

Mr. Maylard had understood Dr. Steven to say that the sections which had shown the organisms had not been in the typical part of the growth. If he remembered rightly, Galloway had, in his Morton lecture, stated that the margin of the growth was the best part to find them. Did Dr. Steven, he asked, not regard that as a typical part? Then there was the point as to whether the bodies were found elsewhere than in cancers. Were they to be found, *e. g.*, in chronic inflammatory swellings? Dr. Steven had mentioned a case of sarcoma as having given them. Perhaps, therefore, their occurrence was not limited to epithelial structures.

Dr. R. M. Buchanan stated that he was satisfied that the bodies described were parasitic, and the cause of cancer; he was convinced of this by the points of analogy with other parasites, and with the diseases which these parasites produced. As regards the bodies themselves, he would mention (1) their uniform presence in cancer with abundant evidences of development and definite structure; (2) their greater abundance where the cancerous growth departed most from the normal type; (3) their uniform reaction to certain staining reagents; and (4) the fact that no similar organisms had been found elsewhere than in cancer and certain other growths. There were, besides, certain points of analogy between cancerous and other parasitic diseases—for example, cancer followed a definite type; it was infective; and he knew of no other new-formation of which that could be said which was not of parasitic origin. Again, the tendency of cancerous disease was always towards death, and in that respect it was like some other diseases associated with specific new-formation—the causative agent, having implanted itself, goes on multiplying indefinitely. Like them also, it produced what might be called a cachexia—even though the cancerous tumour were small in bulk—and that seemed to indicate

that there was produced in the cancerous tumour a poisonous substance secreted by the abnormal growth, or more likely produced by the parasitic organism. Radiation had been mentioned by Dr. Steven and had been regarded by him as probably to be explained by the shrinking of the protoplasm, but the perfect symmetry in structure which the various forms of bodies presented was not likely to result from such shrinking. A parasite which came near to that of cancer was the plasmodium of malaria, and in connection with the latter, there might be seen a somewhat similar radiation which marked an important stage in the life history of the parasite. In the coccidium disease in rabbits they had a condition which might be regarded as an epithelial growth. The question raised as to leucocyte invasion was not, he thought, of much importance, because the presence of the leucocytes appeared largely to depend upon the "irritation" to which the part was subjected.

Dr. Coats had little to add to what he had said at the meeting of 7th October. He was still in the frame of mind of all the speakers except Dr. R. M. Buchanan. He (*Dr. Coats*) did not think that they were far enough on to accept this organism, though it would explain a great deal. The existence of the bodies could not be doubted. If they were the products of the cell, the nucleus had nothing to do with it, and he did not know that there was any analogy of cell-production apart from the nucleus; but cancer was a very abnormal growth, and the conditions were abnormal, and thus the protoplasm might be stimulated and take on special functions. *Dr. Coats* did not think that what they had here was to be regarded as a degenerative change. It was more like an active formation, and if they could have an endogenous formation apart from the nucleus he thought they must have that here. The nucleus of those bodies was very different from the nuclei of ordinary animal cells in staining reactions; it stained with acid dyes, whereas all other nuclei stained with basic dyes.

Dr. Coats must disagree with what *Dr. Buchanan* had said about cachexia, for he (*Dr. Coats*) had not found cachexia in cancer, except in cases with ulceration of the tumour or with large involvement of some important organ; he had seen nothing to hinder a small non-ulcerated cancer existing apart from cachexia.

Dr. Coats conveyed the thanks of the meeting to *Drs. Steven* and *Brown* for their communication, and expressed the wish that more general practitioners would engage, like *Dr. Brown*, in pathological investigations.

Dr. Lindsay Steven, in reply to *Mr. Maylard's* questions,

said that he could not see any necessary contradiction between Galloway's statement and his own, and that, besides his sarcoma case, he knew only of one non-cancerous case in which similar bodies had been found—viz., the one to which Dr. Workman had referred. He could not agree with Dr. Buchanan's statement as to uniform reaction to staining reagents.

Dr. R. M. Buchanan said any differences were due to differences in age.

III.—NOTES OF A CASE OF GLANDERS IN A MAN.

BY DR. J. WALLACE ANDERSON (DENNISTOUN) AND DR. A. K. CHALMERS.

WITH DEMONSTRATION OF THE BACILLUS.

BY DR. R. M. BUCHANAN.

Dr. Anderson read notes of this case, which presented many points of considerable interest. The patient was a stableman in the employment of the Tramway Company, and was in middle life. His symptoms began with intense *malaise*, accompanied with shiverings, which repeated administration of stimulants was ineffectual in relieving. The temperature was then elevated, and after a few days patient was compelled to cease work. Several areas of deep-seated tenderness then began to manifest themselves, notably, in the calves of the legs and muscular tissues of the arms and forearms. At this time there was also an uncomfortable feeling, scarcely amounting to pain, in the thorax, but no cough or dyspnoea until later. In the second week of illness several spots began to appear on the limbs and scalp. These were at first red papules with an inflamed base, and became in time vesicles containing a purulent discharge, from which the bacillus was recovered, as described by Dr. R. M. Buchanan. These vesicles, on rupturing, became the site of necrotic patches, displaying no tendency to heal, but rather to spread by enlarging erysipelatous-looking areas. Prostration now rapidly increased, and patient was unable to leave his bed. In the last days of his illness the lungs became affected, and a purulent expectoration was established; while in the last thirty-six hours, or rather less, of life, a decided involvement of the nasal respiratory tract and connected sinuses and a semi-purulent nasal discharge became established. Death occurred on fourteenth day of the disease.

Etiology.—At the date when his illness began and for some time previously, patient had been in attendance on glandered horses, but it falls to be noted that careful examination failed

to disclose any area of abraded skin on his hands or elsewhere which could be assumed to have afforded a means of entrance for the bacillus. He was himself positive that he had no sores on his hands, but he had a distinct recollection of an affected horse snorting in his face on one occasion. Some abraded patch in his own respiratory tract may have thereby afforded an entrance into his system of the bacillus, but it will here be remembered that the first local manifestation of the disease in the patient was not in the lungs or upper respiratory tract, but in the muscular tissue of the leg.

Dr. Chalmers, referring to the older name "glanders and farcy," remarked that the farcy element had been the most prominent throughout, the thickening in the muscular tissue having been present when there was no sign of involvement of the respiratory tract, unless the discomfort in the thorax. *Dr. Buchanan's* specimens, too, had been obtained from the farcy element, and the discovery of the glanders micro-organism in the farcy-bud was just a further confirmation of the view that the two elements—glanders and farcy—formed a single disease.

Dr. R. M. Buchanan referred to the specimens he had placed on the table. These included cover-glass preparations of the glanders bacillus as well as cultures on glycerine-agar. He found the bacillus in the vesicles over the nodules in the ear, arm, and thigh, but it was difficult to stain. *Dr. Coats* had inoculated a field-mouse with a culture obtained from this case; in thirty-six hours it had died, and the bacillus had been found in the liver and other organs of the animal. Considering the extremely virulent nature of this microbe, it was remarkable that glanders was so seldom seen in man.

Dr. Coats had once seen at Belvidere a case of glanders in a man. It also had largely the farcy characters, except that the nodules were more like abscesses; indeed, the case altogether had looked like one of pyæmia with abscesses.

IV.—CARD SPECIMENS.

A. BY DR. MURDOCH CAMERON.

Calcified myoma of the uterus (interstitial), of long duration, with pressure symptoms. Removed by operation.

B. BY DR. L. R. SUTHERLAND.

Specimens illustrating Weigert's methods of staining the central nervous system.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1892-93.

MEETING VII.—10TH APRIL, 1893.

The President, DR. SAMSON GEMMELL, in the Chair.

I.—CHILD WITH ENLARGED SPLEEN FROM RICKETS—REDUCTION UNDER OBSERVATION.

By DR. DONALD MACPHAIL.

This child had been shown by Dr. Macphail to the Society on 9th May, 1892, with enlargement of the spleen of about three months' duration (see vol. ii, 1892, p. 303). In bringing the case forward again, he submitted the following additional particulars:—

"The treatment carried out persistently from the beginning was on general lines mainly—careful feeding, cod liver oil and syr. ferri iod. internally, and regular cold bathing with sea salt, and inunction of the abdomen with iodine ointment. The progress of the case was uninterrupted by any incident. The spleen gradually and steadily became smaller, and gradually receded to its normal position. At first, as the swelling decreased, the area of dulness seemed to recede from the edge of the ribs, and the spleen could be moved about freely in the left half of the abdomen. For the last six weeks at least it has not always been possible to detect any enlargement.

"The general signs of rickets noted when the child was last shown have become less, her general condition is fairly good, and her habits are more lively."

Dr. Samson Gemmell said that although the spleen was still within reach of palpation, there was no doubt about the manifest reduction in size, and that thus the diagnosis of rickets which Dr. Macphail had previously submitted was fully borne out. The child, he noticed, had kept its colour well, and there would thus seem to be no reason now for suspecting leukæmia.

II.—CASE OF PHARYNGO-MYCOSIS LEPTOTHRICIA.

By DR. BROWN KELLY.

A detailed report of this case will be published on conclusion

of the treatment. The patient was shown to the meeting, as were also microscopic preparations illustrative of the mycosis.

Dr. Charles Workman spoke on the bacteriology of the subject.

Dr. Renton said that cases such as *Dr. Kelly's* occurred from time to time, and that the feature which had struck him in connection with them had been the difficulty of getting rid of the condition. He had had two similar cases within the last two years, and had found the cautery an effectual form of treatment.

Dr. R. M. Buchanan would make a suggestion as to treatment. The organism present had this peculiarity that it would not stain with iodine in alkaline solution, while it did stain with iodine in acid solution, and thus iodine in acid solution might be of some service in treatment, although he had not yet tried it.

At the Sick Children's Dispensary he had had two cases—a brother and a sister: in the boy the mycosis had extended practically all over the mouth, but in the girl it had been more limited, affecting the cheeks, tongue, and pharynx. The cases had been under his care for a considerable length of time, but had disappeared before the condition had been removed. The usual applications had been tried, but with little effect; he thought that sulphurous acid had probably done most good.

III.—SPECIMEN OF SARCOMA OF POSTERIOR HALF OF LEFT CEREBRAL HEMISPHERE.

BY DR. EBEN. DUNCAN.

The patient, A. M'I., was aged 33, and a druggist.

History.—At 18 years of age, while walking on the road-way, he became mentally confused for a few seconds, and had a sudden jerk of his right hand, by which the walking stick which he carried was thrown from him. He staggered for some yards and then recovered himself. For ten years after this occurrence he continued perfectly well; then, after a severe headache, he felt twitchings in the fingers of the right hand and in the fore-arm, followed by unconsciousness. During the following five years he had similar attacks at intervals of weeks or months. His friends observed that his right arm and sometimes the right side of his face twitched before he lost consciousness. These attacks were sometimes followed by general convulsions. On one occasion he wrote an account of his own sensations. His first feeling was

numbness in the right foot. This was followed by sensations of numbness in the right arm and face, and then by twitchings in these latter parts. In 1891 his headaches became frequent and severe, and he had double vision, for which he consulted Dr. Davidson of Aberdeen, who found that he was suffering from optic neuritis, and diagnosed a cerebral tumour. In October, 1891, he placed himself under the care of Dr. Wm. Macewen of Glasgow, who had him under observation in the Royal Infirmary from December, 1891, till April, 1892. During this time he had only one fit. This, however, was of great severity, and lasted from 9 A.M. till 4 P.M. He had, however, during this time very severe attacks of headache, and his eyesight became much impaired. The night after he left the Infirmary he was seized with violent epileptiform convulsions, and my advice was asked. I visited him on 21st April. I was informed that he had had very severe pain in the head and vomiting on the preceding night, and that after twitching of his right arm and right side of his face, he had violent convulsive fits, three or four in number, and that he was unable to retain anything on his stomach. I prescribed 30 grains of chloral hydrate with 40 grains of bromide of potassium to be administered *per rectum*, and for the following week he had 20 grains of chloral and 30 grains of bromide administered by the mouth twice daily. He had no return of the fits. After a month's residence at the seaside he returned to the Royal Infirmary, where he was trephined over the left parietal bone by Dr. Macewen in the following June. No full report of his state at this time is to be found in the records of the Royal Infirmary. He was dismissed on the 26th of August, and again came under my care on the 28th of August. I found him almost totally blind and suffering from violent headaches and frequently recurring fits of great severity. A bulging tumour existed over the left parietal bone at the part trephined by Dr. Macewen. This tumour became larger before the occurrence of the headaches and during the continuance of the fits. I again prescribed chloral with bromide of potassium as a palliative, with the result that he had no return of the muscular spasms, but he had occasional headaches and fits of stupor. He was able to walk out several times in the beginning of September, but after that increasing mental and muscular debility prevented him from leaving his bed. His mind became gradually weaker. He became incoherent, and occasionally cried out as if in distress. In the end his headaches became very severe, and for the last three days of his life he was delirious and quite unconscious, passing his

evacuations in bed. He died on the 7th of February, about seven months after the trephining operation above mentioned.

Dr. T. K. Monro submitted the following pathological report:—

“The tumour involves most of the posterior half of the left cerebral hemisphere. It extends forwards to the ascending parietal convolution, which it has invaded from about its middle almost down to the Sylvian fissure. The inferior parietal lobule is the region which on the surface appears to be chiefly involved. On opening up the brain, however, the new growth is found to extend nearly to the occipital pole; it scarcely reaches further forward than the posterior end of the basal ganglia. It involves the posterior limb of the left fornix at its furthest back part. The tumour is confined to the left side, and to the great brain. It is, therefore, of large size, and it has caused complete disorganisation of the tissues, at least so far as can be judged by the naked eye. Red and yellow softening and signs of hæmorrhage are abundantly seen. The grey matter is much paler on the affected side than on the right side, over which latter, too, the meningeal vessels are engorged with blood.

“Microscopic investigation shows that the new formation is a round-celled sarcoma. It contains numerous large capillaries, and in many places the tumour cells themselves are seen to be undergoing degeneration or necrosis.”

Mr. Maylard asked specially as to the condition of the bone in the trephined region. When tension was relieved over it, any malignant growth was apt to increase, as might be seen, for example, when a subcutaneous malignant growth was incised by mistake. But there was the other question as to whether improvement in symptoms took place in such a case as *Dr. Duncan's* from relief of pressure; when such improvement did seem to take place, there were various explanations usually given, relief of pressure being only one of them. The bone in the present case seemed to have united very well, so that it was doubtful if much relief of pressure had taken place.

Dr. J. Lindsay Steven related a case which he had had some years ago at the Royal Infirmary Dispensary. The patient had been a young man, from whose symptoms a localised lesion in the motor area had been diagnosed, there being very marked Jacksonian epilepsy with some unilateral

paresis. Iodide of potassium and mercury having been tried without any improvement, the case had been sent into Dr. Macewen's ward, where trephining had been performed and a portion of brain excised. The paresis had then been replaced by a complete paralysis, and the fits had for a short time become worse, but had afterwards been completely recovered from, though a certain amount of weakness in arm and leg had remained. The patient had returned to the dispensary after the operation, and attended there for over a year, without any recurrence of fits.

Dr. Fleming spoke of the importance he attached to the question of intra-cranial pressure, and referred to experiments conducted by himself and others which seemed to bring out that the quantities of cerebro-spinal fluid in the cranium and in the spinal canal were capable of interchange in such a way as to a large extent restore any temporary local derangements of balance. He quoted a case in which he had trephined for epilepsy caused by an old-standing depressed fracture of the skull; pressure had been entirely removed by removing a portion of bone at the operation, and the patient had continued well for a long time, but had recently returned on account of a renewal of symptoms.

Dr. Renton also referred to cases in which recovery had taken place from epilepsy after trephining. In one, in which the improvement had only been temporary, an injury had been sustained, some years previously, to the part of the head exactly opposite that motor area which had been indicated by the fits as the seat of lesion; on trephining over that motor area an old clot had been found and removed. Cases of epilepsy occurring at once after injury he considered to be the most favourable for operation.

Dr. Parry asked if percussion of the skull had been employed as a means of diagnosis in Dr. Duncan's case. He spoke of the various indications that there had been to assist in the localisation of the tumour, and suggested that minute examination should be made of the neuroglia, of the nerve fibres, and of the cortical cells. The neuroglia often suffered very extensively before the fibres became involved, and this was likely to be the case with connective-tissue growths such as sarcomata. It was by the late involvement of nerve fibres that the delay in development of symptoms was often to be explained. Dr. Parry referred to certain analogous facts which he had observed in connection with spinal cord cases in which he had trephined.

Dr. Duncan explained that he had had no opportunity of

employing percussion in the case, owing to the extensive trephining of the skull over the affected area, and the fact that several of the discs of bone which had been replaced were lying loosely under the scalp, not having united together.

In reply to the *President*, he added that the headache had not been localised, and that there had been no permanent paralysis.

IV.—SPECIMEN OF ENDOCARDITIS OF BOTH AURICULO-VENTRICULAR VALVES, WITH EMBOLISM OF THE LOWER FEMORAL AND SUBSEQUENT GANGRENE OF THE LEG IN A GIRL.

BY DR. EBEN. DUNCAN.

Dr. Duncan's clinical report is as follows:—

"J. R., deaf-mute, school girl, æt. 14, admitted to Victoria Infirmary, 16th March, complaining of cough and breathlessness. On examination, her lungs were found to be full of moist crepitant râles, and there was dulness at both bases behind. *Heart*.—The apex beat was displaced downwards and to the left of the nipple, and a loud blowing V.S. murmur was heard over mitral and tricuspid areas. The right foot and leg were covered with purple patches up to the knee, and the foot and leg were cold. During the next three days her dyspnoea increased, and the toes and heel of the left foot became black and presented the usual appearances of dry gangrene. She died on the fourth day after her admission."

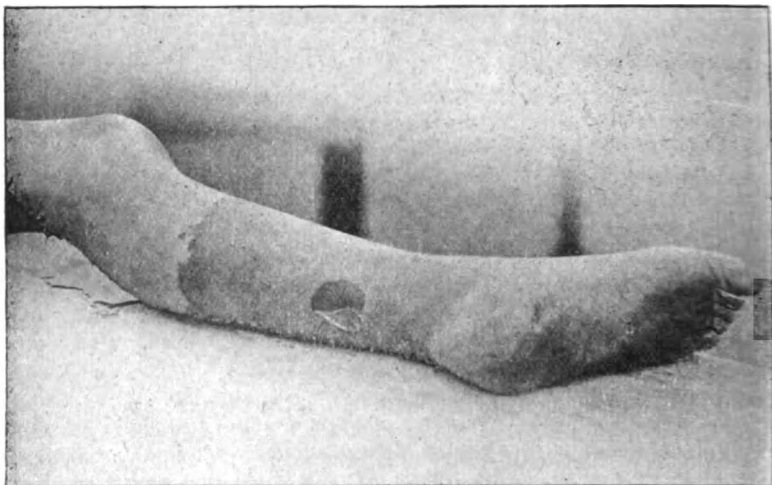
Dr. T. K. Monro's pathological report is as follows:—

"On dissecting the left lower limb, a large thrombus, nearly 2 inches long, is found in the femoral artery, its upper end being about 4 inches below Poupart's ligament. The veins below the knee are engorged with blood, and some of the muscular tissue about the joint is in a very fatty condition.

"The subpericardial fat is distinctly increased, and there is a large quantity of serous fluid in the pericardium. The aortic valve is incompetent as tested with water, but there are no vegetations on it. There is a practically complete ring of warty vegetations around the right auriculo-ventricular orifice, and on the part of this valve nearest the interventricular septum large masses of fibrin are adherent. Vegetations are abundantly present on the mitral valve, and, at a little distance above these, on the inner aspect of the wall of the left

auricle, there is a patch, measuring three-fourths of an inch by half an inch, which is elevated above the surface, oval in shape and covered with fibrin. The pulmonic valve, like the aortic, appears healthy.

"There is a considerable serous effusion in the right pleura, and the right lung is partly adherent. Both lungs are cedematous and congested, and portions of their substance cut off incline to sink in water. There is no lobar inflammation, and no pus is found in the small bronchi.



GANGRENE OF LEFT LEG : INNER ASPECT.

(From a Photograph.)

"There is a slight degree of fatty infiltration in the liver.

"Two pale infarctions of moderate size are found in the right kidney, but otherwise both kidneys are healthy-looking.

"The spleen also is healthy.

"No evidence of arterial pyæmia is met with.

"Though numerous scars, suggestive of old strumous disease, are present in the neck, no caseous glands or other signs of tubercular disease are found within the body."

Dr. J. K. Love gave an account of the patient's condition at the time when she had been under his care at the Royal Infirmary. She had then had a very bad-smelling discharge from one ear, and he had had to remove two sequestra from

the mastoid by operation. From this operation she had made a satisfactory recovery, and she had been entered about Christmas time as a pupil in the Institution for Training Deaf and Dumb Children. Discharge from the other ear had begun before admission to the Victoria Infirmary.

Dr. Love regretted that he could not show the temporal bones along with the other specimen.

The *President* and others having raised the question of the endocarditis being "ulcerative," Dr. *Monro* said that there was nothing to suggest that to the naked eye, and that he had not yet examined microscopically (but *cf. supra*).

Dr. *Duncan* thought it must be rare to get gangrene from embolism in such a case as this, and he supposed it had occurred here because of the child's low condition generally, and because of the weakness of her heart. He did not think that if she had been otherwise healthy the mere fact of embolism would have produced gangrene.

V.—SPECIMENS AND PHOTOGRAPHS OF THE OVA OF BILHARZIA HÆMATOBIA FROM A CASE OF HÆMATURIA.

By DR. H. E. JONES.

As it is intended that a full account of the above case be published elsewhere, it may suffice meantime to mention that the patient in question was a man, 30 years of age, who had spent several years (1883-86) with his regiment in Egypt. The hæmaturia had been first noticed early in 1885, when he was serving with a mounted detachment up the Nile. It varied much in amount, but had persisted, more or less, almost constantly up till the time of his coming under observation as an out-patient in Dr. Finlayson's wards at the Western Infirmary (December, 1892). While in Egypt he had been in the habit of bathing in the Nile, and of drinking water from the river and from the wells of the desert. Repeated investigation of the urine had been made by Dr. Jones, the results of which were detailed to the meeting, and showed that blood and ova had been regularly present. The latter had been carefully examined as to their size and otherwise; in particular, it had been observed that, under favourable circumstances, the development of ovum into embryo might be watched under the microscope.

Dr. *Samson Gemmell*, on behalf of the meeting, thanked Dr. Jones for his communication, and especially for his description of the development of the ova.

MEETING VIII.—8TH MAY, 1893.

The President, DR. SAMSON GEMMELL, in the Chair.

I.—A CASE OF RIGHT LATERAL HOMONYMOUS HEMIANOPSIA.

By DR. T. SPENCE MEIGHAN.

Dr. Meighan showed the above patient, and also the perimeter tracings obtained. His account of the case is as follows:—

"B. S., aged 21, warehouse-girl, came to the Glasgow Eye Infirmary on 7th April last. Two years ago she was in ill-health, felt weak, and was unable to attend work as formerly. She also suffered occasionally from headaches, chiefly affecting the frontal region. Sometimes she felt sick and like to vomit, and her appetite was very poor. She was pale in colour, and suffered from slight palpitation. Under treatment she improved, and in a few weeks resumed her work.

"The *present illness* began rather suddenly, in the second week of March, with severe frontal headache, which was worse on the left side, and for a whole day at that time she was prostrated by the pain, felt very sick, and vomited everything she took. In the evening she fell asleep, and slept for over twelve hours. When she awoke the pain was still very severe, so much so that she could not rise, as she felt giddy and like to stumble. She now observed that something had gone wrong with her sight. She could not see distinctly, and there appeared to be a mist before her eyes. The pain in her head continued for three or four days, and then gradually subsided, the vomiting and sickness also getting better, but the sight continued dim. She then noticed that she could only see the half of anything she looked at.

"On *Examination* at Eye Infirmary it was noticed that she looked pale and ill. She was able to read No. 4 Jäger's test type with either eye when the print was held to the left side.

"*Head.*—Nothing was elicited by percussion, except that she complained of some pain on the left side, and by the stethoscope nothing was made out.

"*Eyes.*—The patient could fix fairly well with both eyes, and all ocular movements, including convergence, were well performed.

"*Pupils*.—Both were dilated, and acted slowly to light; no hemiopic loss of contraction to light could be made out.

"*Ophthalmoscopic Examination*.—Right eye: Media clear, emmetropic, no abnormal appearances in fundus.

"Left eye: Media clear, simple myopic astigmatism of slight degree found; no abnormal appearances.

"*Field of Vision*.—A perimeter tracing was taken for both eyes, and showed a nearly complete hemiopic field in both. The limit did not pass through the fixation point of the left eye, but was 5° to the right of this point, while the temporal field extended to 85°, and the nasal field of the right eye to 55°. The field for colour was reduced.

"The examination of the movements of the *face, trunk, and limbs* gave no definitely abnormal results, unless that the right knee-jerk was rather more marked than the left. The grasp of right and left hand seemed to be equal. Sensation was normal, and hearing natural. No cardiac derangement was detected.

"*Family History*.—Parents living and healthy; five sisters and four brothers living and well. One sister, aged 8, died recently; cause of death said to be inflammation of the brain, but it had been noticed that she was paralysed on one side for a week before death."

Dr. Meighan also submitted the following supplementary note:—

Report by Dr. Alex. Robertson (6th May, 1893):—

"Examination of the different forms of sensibility, both special and general, all of them being tested first on one side and then on the other, does not show any defect. Muscular sense and vasomotor power seem normal. The action of the sudoriferous glands is in excess, but not more markedly so on one side than on the other. Psychological function is in no way affected, and does not seem to have been implicated in the course of her trouble. Dr. Meighan's observation as to a degree of exaggeration of right knee-reflex is corroborated, and a doubt is felt as to the power of the right hand being equal to that of the left, but observation gave somewhat varying results on this point. Functions of bladder and bowel are in no way affected. There is no history of rheumatism, and the heart is normal. Expiration is prolonged in the right supra-spinal region. The general aspect is somewhat strumous. The condition of the teeth does not suggest hereditary syphilis, nor are there any obvious indications of

acquired disease, although the possibility of it should be entertained. Urine normal."

Dr. Meighan remarked that the case was one in which the defect existed in the visual field, without the ophthalmoscope showing any disease of the deep tissues of the eye, so that the defect must be referred to some break in the conduction. The lesion could not be situated at the chiasma, but must be in the optic tract. Then it was observed that the pupils acted to light, and this point might lead them to infer that the break in the conduction must lie above the spot at which the fibres to the oculo-motor nucleus are given off, probably in the region of the optic thalamus. There were no symptoms from which to infer a cortical lesion.

Dr. Alex. Robertson thought that there was fair ground for localisation to a certain extent at least. The lesion must clearly be above the chiasma, but they might exclude the internal capsule (posterior third) because of there being no defect of sensation, and they might also exclude the cortical regions, which one might think of, because of the absence of psychical disturbance. Then it had been mentioned that the right hand was thought to be weak, and that there was exaggeration of reflex in the right leg. These points might be taken in connection with the fact that the optic tract rested on the crusta of the crus cerebri—viz., the motor part of the crus. A lesion involving this region would explain the symptoms. As to the nature of the lesion, the girl looked scrofulous, and there might be a small deposit of tubercle which after lying quiet for a time had given rise to some inflammation. One must also remember the possibility of syphilis, and he would recommend the use of mercury.

II.—TWO CASES OF ATROPHY OF MUSCLES OF TRAUMATIC ORIGIN,
ONE OF WHICH WAS PREVIOUSLY SHOWN TO THE SOCIETY
ON 14TH MARCH, 1892.

By DR. DONALD FRASER.

Dr. Fraser's account of the cases appears as an original article at p. 110.

Dr. Alex. Robertson thought it strange that J. R.'s sensation had escaped, supposing they accepted the theory that his condition had resulted from injury. Dr. Fraser had mentioned progressive muscular atrophy, and that view of the case commended itself to him (*Dr. Robertson*). The facts mentioned

about the electrical reactions were not necessarily against it, for in progressive muscular atrophy they frequently had merely a weakening of reaction, and the degree of that weakening depended on the degree of wasting or degree of destruction of cells in the anterior cornua.

In the other case (D. M.) he believed there to be some ascending neuritis explaining the motor and sensory symptoms above the seat of injury.

Mr. Maylard said that, seeing J. R. again after the interval which had elapsed, they could now exclude the theory of pressure on nerves by the head of the humerus, because on that theory they would have expected recovery. If they were to keep to a nerve theory, it must be that there had been some stretching at the roots of the nerves; traumatism acting in that way would, however, have been expected to show its results immediately after the injury. He hoped that Dr. Fraser would bring his other patient (D. M.) to be shown again.

Dr. Coats remarked that surely the bilateral character of J. R.'s affection pointed to a lesion in the cord.

Dr. Fraser explained that both arms had been subjected to injury, and that there was not perfect symmetry, different groups of muscles being unequally atrophied in the two arms.

Dr. Samson Gemmell said that, looking at the case now, it had many of the clinical features of progressive muscular atrophy.

III.—SPECIMEN OF SCIRRHUS OF THE MAMMA REMOVED FROM A MAN.

By PROFESSOR GEORGE BUCHANAN.

The patient from whom the above specimen had been removed was a man, aged 52, who, three years ago, had sustained a blow from a stone on the left nipple. The bruise had been recovered from in a short time, but a lump had formed, which had, however, remained in abeyance till a few months before operation. When examined, the tumour was found to measure about 2 inches in breadth by half an inch in thickness, and to present the ordinary characters of scirrhus. There had been enlarged glands in the axilla. There had also been some ulceration of the skin around the nipple, but the idea which this had suggested, of their having to do with Paget's disease, had not been confirmed. The sections now shown under the microscope would be found to agree with the diagnosis of scirrhus.

IV.—SPECIMEN OF AN EPITHELIOMA WHICH DEVELOPED IN THE SCAR OF AN OLD LUPUS OF THE FACE.

BY PROFESSOR GEORGE BUCHANAN.

The patient, a man of 40 years, had suffered for a long time from lupus of the face and neck, which had frequently healed only to break out again. The resulting scar had extended from the angle of the mouth to the angle of the jaw. About six months before he came under observation, a nodule had formed in the part of the scar which involved the cheek. It had grown to be of walnut-size, its surface being irregular, and its appearance in general like that of a dendritic tumour of the bladder. Epithelioma had been diagnosed and the growth excised, the only difficulty in the operation having been the bringing of the flaps together. This difficulty was to be explained by the skin having become adherent at the angle of the jaw. There was no involvement of glands, and this Professor Buchanan explained on the ground that the cicatricial nature of the tissue had interfered with the activity of the absorbents.

Microscopic sections were shown, demonstrating the epitheliomatous nature of the growth.

Dr. Rutherford thought that in a case of typical epithelioma they would have expected glandular implication within the time mentioned. In cases of implantation of epithelioma on lupus, however, it was noted by Mr. Jonathan Hutchinson that it was unusual to get glandular implication, and that locally the epithelioma was not typical. In his *Archives* several illustrative cases of his own and a few of German observers' were quoted. In its failure to disseminate, and in its microscopic appearances, this cancerous degeneration of lupus resembled rather rodent ulcer. *Dr. Rutherford* could not see in the specimens now shown any typical squamous-celled formation, and certainly no "nests."

Dr. Lindsay Steven spoke of the appearances under the microscope, and said that, while the main bulk of the tumour was quite unmistakably epithelial in histological type, still, the epithelial elements were not those he would expect in an ordinary epithelioma of the cheek. It was a possibility that the lupus had excited an unhealthy growth of epithelioma, and he would mention a specimen from a case of lupus of the nose which he had been examining recently, and covering which there had been quite an unusual proliferation of epithelial tissue; in that tissue *Dr. Workman* had found

bodies like the protozoa so much talked about just now in connection with cancer.

Dr. R. M. Buchanan said that at first sight the question was raised whether the tumour were really a squamous-celled epithelioma. It certainly did not conform to that type, there being no down-growing processes and no "nests"; yet the mass of the tumour consisted of processes of epithelial cells, with a scanty stroma of connective tissue. When he had seen it, the structure had at once suggested to him a comparison with that of epithelioma of the penis.

V.—LARGE EXOSTOSIS FROM LOWER END OF FEMUR.

BY PROFESSOR GEORGE BUCHANAN.

Card specimen:—Patient, a man, aged 25. Tumour present for some years just above knee, on inner aspect of thigh, but troublesome only lately; covered by a bursa; removed easily by chisel, and found to consist of cartilage and cancellated bone; in general appearance like the head of the humerus.

VI.—A FŒTUS WITH VARIOUS DEFORMITIES, APPARENTLY DUE TO ADHERENT AMNION.

BY DR. DONALD MACPHAIL.

Dr. Macphail showed this specimen, as well as a drawing of it, and gave the account of the case which appears as an original article at p. 101.

Dr. Coats thought that the word "synpodia" (which had appeared on the billet) was inapplicable in this case, and referred to the use of "sympus" by Ziegler and Birch-Hirschfeld as meaning coalescence of the lower extremities. He did not think that the present specimen showed any true coalescence, even of the feet. With a lens he could make out five bones on one of the conjoined feet, and there were several visible also on the other. In the fresh state the appearances might, of course, have been different, but, as seen after preservation in spirit, the feet seemed to be wrapped over by adherent amnion, and thus conjoined, rather than coalescing in any way.

Dr. Macphail agreed with *Dr. Coats* that the appearances had changed with preservation. He intended to send the specimen to Professor Cleland or *Dr. Coats* for further investigation.

VII.—DR. MIDDLETON'S CASE OF MULTIPLE TUBERCULAR TUMOURS
—FURTHER REPORT ON THE VISIBLE GROWTHS IN THE
LIVER (ADENOMATA).

BY DR. JOSEPH COATS.

The specimens from Dr. Middleton's case were shown at the December meeting. The visible tumours in the liver had been examined again in view of the question as to whether they were tubercular or not. Dr. Coats had now to report that they were not tubercular, though it was true that minute tubercles were scattered sparsely through the organ. The larger rounded tumours were difficult to find in the microscopic sections, because the tumour tissue was so like the hepatic that it was difficult to discriminate between them. That fact in itself was sufficient indication that the tumours were of liver structure; they were really adenomata. In the tumour tissue, however, the arrangement of the cells was not so definitely lobular as in the normal liver tissue, and where lobules could be made out in the tumour tissue they were larger than ordinary hepatic lobules. While some adenomata of the liver had a definite connective tissue capsule surrounding them, in this case there was no attempt at capsule, but simply a gradual shading off into hepatic tissue. Again, adenomata were sometimes associated with cirrhosis, but that was not the case here, or at least there was not more than a very little cirrhosis. In the respects mentioned the present tumours might be held to differ from ordinary adenomata.

Dr. Coats thought that it was a mere coincidence that there should have been this association of adenomata and tuberculosis. He had not, in any of the parts he had examined, met with any tubercles in the glandular tumour tissue. The tubercles all over the organ were sparse—more so than was usual in ordinary general tuberculosis; it might thus be an accident that none had been found in the adenomata.

VIII.—FROZEN SECTIONS SHOWING EARLY DISEASE OF HIP-JOINT.

BY DR. RUTHERFURD.

These were shown as card specimens with the following explanatory note:—

"Sections of the hip-joint in early tubercular synovitis from a child of 6, who died of tubercular meningitis; symptoms connected with the hip had been present for some months."

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

M E D I C I N E.

By T. K. MONRO, M.A., M.B.

Tabetic and Syringomyelic Arthropathies. Charcot (in *Le Progrès Médical*, 29th April, 1893, with literature and illustrations).—Tabetic joint affections may, in some cases, appear in advance of all the rest of the train of symptoms, and be, for a time at least, almost isolated phenomena (*precocious tabetic arthropathies*); but, before long, as a rule, careful investigation will disclose some other facts that indicate the true nature of the disease. Thus a man, æt. 29, non-syphilitic, but the son of an alcoholic, and grandson of an epileptic, was suddenly seized, while "doing his 28 days," with localised pain in the groins. After three days' limping about, he fell on the ground, and when a doctor examined him a week later, he made out distinct crackling in both hip joints. Seen by the author after the lapse of three months, the patient could stand upright and even walk with the aid of a stick, but both hip joints were completely dislocated. In spite of the absence of pain, fever, and changes in the soft parts, the diagnosis at first was not obvious. The knee-jerks were preserved, and there was no motor inco-ordination. It was found, however, that the pupils did not react to light; the patient had already complained of lancinating pains in his lower limbs, and of numbness in the forehead; and, on testing, sensation was ascertained to be deficient in the latter region. In course of time, new features developed and justified the diagnosis: incontinence of urine, then paralysis of the third nerve, and finally laryngeal spasm.

In syringomyelia there may occur, not only spontaneous fractures of bone, but also arthropathies, whose evolution and characters agree exactly, so far as we can judge (and our knowledge is based on a comparison of only some thirty cases) with those of tabes dorsalis.

Seven years ago a butcher, aged at that time 25, the son of alcoholic parents, but with no personal history of syphilis, rheumatism, or excess of any sort, was suddenly seized, while in apparently perfect health, with intolerable pain in the heels, so that he could not stand on his feet, though, while recumbent, he felt quite well. This hyperæsthesia passed away in a few days, and was followed by acute lancinating pains in the various joints of the four limbs (nowhere else). The lightning pains were spontaneous, uninfluenced by voluntary or passive movement, and unassociated with swelling or elevation of temperature. The crisis passed off after three months, and for long afterwards patient experienced only occasional, though still characteristic, pains in the articulations.

Seven years from the first onset, patient felt one day, while working, a vague sense of uneasiness in his right wrist, and on looking at the part, found it swollen. The soft parts pitted on pressure, but there was no pain. A month later, the right shoulder was similarly affected. When he came under the observation of the author, the joint lesions were exactly like those of tabes, and the lightning pains, though peculiar in being localised to the neighbourhood of the joints, and never spreading throughout the continuity of the limbs, might well have been explained by such a view of the case. The patellar reflexes, however, were normal; there were no bladder troubles; Romberg's sign was absent; pupils normal; no ocular paralysis. On the contrary, a well-marked nystagmus was present—a rare symptom in tabes, but not infrequent in syringomyelia. The skin on the fingers of the right hand, and on the front of the right shoulder, was insensible to pain, and to heat and cold—a symptom which is met with in diseases of the peripheral nerves,

especially leprosy, and in hysteria, but which, when associated with destructive arthropathies, leaves no doubt as to the nature of the disorder. The muscles of the right shoulder were atrophied, and exhibited fibrillar contractions.

Unilateral Parkinsonian Tremor as a Symptom of Tumour of the Cerebral Peduncle. (*Le Progrès Médical*, 3rd June, 1893.)—Blocq and Marinesco place on record the case of a patient of Charcot's, who, in his lifetime, was the subject of trembling limited to the left side of the body. Clinically and graphically, its characters were precisely those of Parkinson's disease—so much so, that this was the diagnosis arrived at during life. The patient, however, eventually died of pulmonary tuberculosis, and the autopsy revealed the presence of a mass of tubercle in the thickness of the right cerebral peduncle. The tumour was as large as an olive, and occupied the situation, to a large extent, of the locus niger. In spite of its bulk, it was so seated as not to interfere with the crusta of the peduncle, the superior cerebellar peduncle, or the bundles of fibres of the common oculo-motor. There was no ascending or descending degeneration in the peduncle, bulb or cord. Analogous cases have been reported by Mendel and Benedikt, and it may perhaps be said now that tubercles of the cerebral peduncle are capable, without destroying the crusta, of giving rise to trembling, probably by irritating the pyramidal tract.

Tachycardia and Graves' Disease.—Gordon Dill discusses the relationships between these two conditions. Authors, he says, have described an affection whose principal feature is a tendency to periodic attacks of palpitation, with great mental distress, prostration, and dyspnoea, with a subsequent return to the normal state. The temperature is generally raised during these attacks, and is, in the periods of calm, always above the normal.

Such patients are, as a rule, nervous, suffer from indigestion, and are most frequently unfit for any work. There is often a previous history of rheumatism or syphilis, but sometimes there has been no antecedent illness.

There are other patients in whom, with similar symptoms, the tachycardia is persistent and not paroxysmal. There are thus two forms of tachycardia—persistent and remittent. A third may be constituted by certain abnormal cases of Graves' disease. The relationships between these three are very close, and transitional forms are met with.

As Charcot has, moreover, shown that the tachycardia of exophthalmic goitre may be remittent or intermittent, it is reasonable to infer that all the different conditions referred to are varieties of one morbid state. Eleven cases quoted by Dill lend support to this view of the matter. As to the lesion, very diverse theories have been put forward—irritation of the cervical sympathetic, paresis of the vagus, changes in the myocardium, cardiac nerves or ganglia. The future will probably clear up this obscure point in morbid anatomy. Meanwhile, however, treatment remains unsatisfactory. Digitalis and strophanthus have no effect. Quinine, iron, arsenic, and belladonna, though yielding good results in some cases, are unreliable; and drugs which have a sedative or a stimulant action on the nervous system have no appreciable influence on the progress of the disease. The point to be emphasised at present is that complete mental and physical rest should be strongly urged on the patient; he should be interested without being excited; and the general state of the body should be carefully attended to.—(*Le Progrès Médical*, 3rd June, 1893.)

Infrequency of the Pulse and Epilepsy.—Mengy adds another to the list of cases in which a permanently slow pulse has been associated with disease of the nervous system. The patient, a cook, æt. 75, had for fifteen years been subject to epileptiform crises, characterised by convulsions with loss of consciousness, foaming at the mouth, &c. He had, besides, slighter attacks several times a day. The more severe ones formerly occurred two or three times a week, but for a year past, much less frequently. No cause could be discovered. His previous health had been excellent; and indeed,

notwithstanding the epilepsy and vertigo, the general state remained so good that he had never consulted a doctor about this illness.

At length he asked advice because of a feeling of oppression which made it difficult for him to climb stairs, and he also complained of pain in the nape of the neck. His face was pale, and his legs cedematous with varicose veins. The urine was abundant, and free from albumen. The pulse was regular, large and strong, but very slow, not more than 27 per minute. The apex-impulse of the heart was diffused, but no murmurs or abortive systoles could be detected. Respirations numbered 27 to 30 per minute, and accordingly the cardiac systole seemed almost regularly to follow the commencement of each respiratory movement. Rest in bed, milk diet, iodide of potassium and diuretics were prescribed.

In two days the patient became semi-comatose. Slight convulsions set in, involving the muscles of the limbs and face. The muscles at the back of the neck were in a state of contracture, so that the head was drawn back. The pupils were contracted; the bladder empty; temperature normal; respiration was now 39 per minute; and the pulse, which was feebler, had likewise become accelerated to 39. Death took place in forty-eight hours.

A pulse of marked and permanent infrequency has long been recognised as compatible with good health, as witness the case of Napoleon the First, whose pulse, according to Corvisart, never exceeded 40 in the minute. Of late years, however, several theses have been published dealing with this subject, and a relationship has been recognised as existing between the permanently slow pulse and certain nervous disorders—vertigo, epileptiform convulsions, and apoplectic seizures.

Huchard has cited several cases of coupled rhythm, in which the true contraction of the heart is followed by an abortive one, not perceptible in the pulse. He admits that the abortive contractions may be confined to the auricles.

The attacks of vertigo appear to be dependent on the slowing of the heart's action. Sometimes they are of short duration, and unaccompanied by loss of consciousness; at other times they are more prolonged, and end in syncope. Apoplectic symptoms may follow the syncope.

Epileptic seizures are less common than vertigo. They are associated with insensibility, deviation of the eyes, convulsions, and stertor.

Dyspnœa is common, especially on exertion, so that the patient pants on attempting to go upstairs. There may also be some weakness of the lower limbs.

Cardiac, renal, or digestive symptoms may likewise be present.

The most probable theory is that there is a bulbar lesion. Sometimes there is a history of injury to the head or neck.

The age of the patient is, as a rule, over 50; men suffer much more frequently than women.

The condition is generally overlooked for a time. The onset of nervous symptoms may first lead to an examination of the pulse.

Death takes place from a renal or pulmonary complication, or from coma.

[While mentioning various other writers on this subject, the author does not allude to Tripiër, of Lyons, whose views are clearly expounded and discussed by Broadbent in his work on *The Pulse*.—ED.]—(*La France Médicale*, 14th April, 1893.)

Congenital Goitre.—Koffer showed to the Obstetrical Society of Vienna, an infant, æt. 10 days, who had been born with a goitre. The parents both have the affection, and the maternal grandmother and great grandmother had each a congenital bronchocele. The mother has had nine children, all born with a similar tumour. In four of them, it disappeared in the first few weeks after birth. In the remainder, it simply diminished temporarily, to increase again in the later years of childhood. In the eldest child in particular, a girl now æt. 15, the goitre is so large as to interfere with the breathing.—(*Deutsche Med.-Zeit.*, 20th March, 1893.)

PATHOLOGY AND BACTERIOLOGY.

By R. M. BUCHANAN, M.B., C.M.

Parasitic Protozoa in Cancerous Tumours. Ruffer and Plimmer (*Journal of Pathology and Bacteriology*, June, 1893).—After reference to observations recorded in medical journals issued during the last five months, attention is drawn to the distribution of the parasites in colloid cancer and in epitheliomata as throwing some light on controversial points. Colloid cancer of the omentum and peritoneum was carefully examined in order to ascertain whether the degenerated cells presented any resemblance to the parasites described by the authors in a previous paper. "Two remarkable facts were soon observed—firstly, that not in a single preparation could we find the slightest resemblance between a colloid cell and a parasite; and, secondly, that the parasites themselves were never found in colloid cells, but always at the periphery, in healthy, active parts of the tumour, where a number of healthy cancer cells surrounded them. In epitheliomata of skin, tongue, and vulva, parasites were demonstrated by various methods, but it is pointed out that in this form of tumour the parasites occur in large groups more often than in the other forms of cancerous tumours." One may cut many sections with a fruitless result, and then suddenly come across a field in which numberless parasites are present.

The authors then proceed to discuss some of the appearances observed by them in carcinoma of the breast—chosen as affording in many ways a good field for studying the life-history of the protozoa. As regards the preparation of the tissue, the best results were obtained by fixing with osmic acid (1 per cent), and staining with eosin and hæmatoxylin, or fixing with the solution first recommended by Foà (equal parts of saturated solution of corrosive sublimate in 75 per cent salt solution, and 5 per cent solution of potassium bichromate), and staining with Biondi's reagent or with eosin and aniline blue.

"The most likely place to find the parasites is in a section passing through or near the growing edge of the cancer. . . . At the periphery the parasites may be single or double, but as one proceeds inwards one may see at no great distance from the periphery whole groups of such parasites of different sizes and shapes. . . . The intranuclear forms also often become common now whilst the various stages between the intranuclear and extranuclear forms may also be observed. As one proceeds towards the older parts of the tumour the parasites gradually disappear, so that in the real fibrous part or in the the degenerated areas none is met with. Near such parts it is not rare, however, to find a cell which has been converted into a mere bag by the numerous parasites contained in it.

One of the phases of the life history of the parasite during its existence in a cancer cell is next described. It makes its first appearance as a small, round body in the nucleus of the cell, the nucleus sometimes becoming darker and smaller in consequence, at other times not much altered. Then part or the whole of the parasite becomes clearer and lighter, and a still further stage is marked by differentiation into nucleus, protoplasm, and capsule. Finally, the parasite, which may be single or multiple, approaches the periphery of the nucleus, and escapes into the protoplasm of the cell.

The Bacteria of the Stomach. Gillespie (*Journal of Pathology and Bacteriology*, February, 1893).—The objects in view in conducting this research were:—(1) To cultivate and identify organisms from the stomachs of patients; (2) to ascertain their products on various media, especially with regard to their acid-producing power; (3) to estimate the effect of hydrochloric acid added to them in a similar manner to that in which it is added in life, and, as far as possible, under the same conditions; (4) to deduce from the

facts observed any points bearing on the etiology of dyspepsia and the treatment of that group of diseases.

Twenty-four organisms were obtained from the contents of the stomachs of different individuals, and their characters and products are given in detail. It was found that many can be grown from the contents of the stomach even when the contents are very acid; that some produce on suitable media the same organic acids as are present in the stomach contents of many cases; and that most of the organisms so grown are very resistant to the action of acids.

A few were selected and tested with regard to their resistance to acids and digestion, and it was observed that hydrochloric acid combined with proteids—proteid-hydrochlorides—has little inhibitory power on organisms in comparison with free hydrochloric acid; that organisms, if present in quantity, exercise a deleterious effect on both gastric and pancreatic digestion; that organisms may pass through the stomach unharmed by hydrochloric acid if the meal with which they are ingested be large and chiefly proteid in character (consequently the numbers and varieties in the intestine are constantly changing); and that a small quantity of the free acid, if combined acid be also present, is sufficient to kill or inhibit organisms which could resist a similar quantity of the free acid alone.

“Although bacteria are of no aid to peptic digestion, and a hindrance to the pancreatic ferment if in quantity in the duodenum, they still are of great use in the small intestine, where they control putrefaction. This seems paradoxical, micro-organisms obstructing micro-organisms but assisting digestion. It seems, however, to be true. The organisms which most easily pass the searching examination of the stomach are those which give rise by their growth to the fatty acids, as they are the most resistant to the action of acids. Their products in the small intestine are sufficient to keep the contents of that viscus acid, and they thereby prevent or control putrefaction. In the large intestine the secretion is so alkaline that the putrefactive organisms reassert themselves. Increased putrefaction in the intestinal canal may therefore be due, in some cases, either to insufficient mortality among the putrefactive organisms in the stomach or to too great mortality among the acid-forming bacteria and yeasts.

“The lactic acid, which appears during the first stages of digestion, is due to the action of organisms. The lactic, acetic, butyric, and succinic acids found in gastroecstasis are due also to organisms which luxuriate in the too stationary contents. The marsh gas, the *Brenndar-gas* of the Germans, is probably due to the same cause. In the only case of this character with which I have had the good fortune to meet, no material for examination could be obtained. . . . The formation of leucin and tyrosin does not seem to be aided by the presence of bacteria.”

Experiments on the Escape of Bacteria with the Secretions. Sherrington (*Journal of Pathology and Bacteriology*, February, 1893).—Do bacteria escape with the secretions? Previous observations are passed in review by the author, and show that the various observers have answered the question differently. His experiments have had for their object the examination of some of the controverted points, and the points which have appeared to him of interest are the following:—

At a time when every drop of the circulating blood is teeming with micro-organisms, there may not be the slightest transit of them into the urinary and biliary fluids then secreted, and they may be completely absent from the aqueous humour of the eyeball.

When several millions of micro-organisms are injected into the blood stream they rapidly, as Watson Cheyne, Fodor, Wyssokowitsch, Franck and Lubarsch, and others have shown, disappear from the circulating blood, and, as Wyssokowitsch has shown, the disappearance of them is not by way of the urinary and biliary secreta. This is true for motile and non-motile, for pathogenic and for innocuous species.

When certain pathogenic species are employed, a number, often very

considerable, of the injected bacteria tend after a time to appear in the secretions of the kidney and the liver, and their escape in the secreta is sometimes accompanied by an escape of actual blood, or, it may be, by a considerable amount of proteid.

Professor Sherrington concludes that "these experiments do not support the suggestion of Cohnheim, that the body, in the event of bacterial invasion, protects itself by excreting the living germs through the kidneys and through the liver; nor do the experiments, on the other hand, confirm the view that bacteria escape in the secreta only when the blood itself containing them escapes. Sometimes there appears a transit of the bacteria across the renal and hepatic membranes without detectable transit of the blood. But the evidence is against believing that when this transit of bacteria across the secreting membrane occurs, the membrane is still normal in condition, although at the same time it need not be ruptured or pervious to red blood corpuscles. The membrane is rather to be regarded as then exhibiting, in a minor degree, the pathological change which, when increased, will render it pervious to the same extent that the capillary wall becomes pervious in an area of inflammation. The fact that the escape of the bacteria tends to occur, not immediately upon the introduction of them wholesale into the circulation, but in the late stages of the communicated disease, suggests that the healthy secreting membranes are not pervious to bacteria, and that only after soluble poisons, produced by the infection, have had time to act upon them do the membranes become pervious to the germs. The fact that species which are innocuous did not, in the experiments, appear in the secreta at any time is in conformity with this conclusion. Among the species observed to escape through the membrane, even in absence of escape of blood, are some that are non-motile; this suggests that in their transit across the secreting membrane the bacteria themselves are passively conveyed, that the transit is less an active migration than a passive transference."

Cancer of the Thyroid following Goitre. Chabory (*La Médecine Moderne*, 17th May, 1893).—The patient was 30 years of age, had a growth in front of his neck about the size of a pigeon's egg. It gave only a slight uneasiness during deglutition, and remained without change for sixteen years. Twelve months ago a cancer was seen to appear in front of this goitre, and it grew rapidly. The *post-mortem* examination showed the malignant growth to have extended to the structures round the thyroid body and both carotid regions, the liver, the pleura, and the right breast. The xiphoid was also affected.—A. N. M'G.

Mycosis Benigna of the Pharynx. Rangé (*La Médecine Moderne*, 17th May, 1893) gives an account of a series of researches—microscopic and bacteriological—on the disease described in 1873 by B. Fraenkel under the name mycosis benigna of the pharynx. This disease is characterised by the presence of white spots on the pharynx, tonsils and base of the tongue, and though not a serious ailment, is difficult to treat effectively.

It is generally believed that the patches are due to an accumulation of the parasite *Leptothrix buccalis* commonly found in the mouth. M. Rangé thinks that conclusion is founded on incomplete data, for in two series of experiments he was able morphologically to separate the parasites of mycosis from the *Leptothrix buccalis*.

Though these cultures enable him to distinguish the two growths better than is possible in the mouth, he prefers to wait till he can produce a more conclusive demonstration of their differences.—A. N. M'G.

DISEASES OF THE EAR.

BY DR. WALKER DOWNIE.

IN the *Archives of Otolology* for April, 1893, Clarence J. Blake, M.D., Boston, continues his series of papers on "Removal of the Stapes," and in this number a modification in the method of relieving pain is noted. Previous to operation cocaine is employed as a local anæsthetic, and Dr. Blake now applies it direct (as opposed to its application through the nares or by Eustachian catheter) by a preliminary incision in the membrana tympani. These cases are recorded with the hope of determining the conditions under which the operation may be most easily performed, and where most benefit may be looked for from its adoption. The report of the results is promised at the end of a year's observations.

In connection with this operation, Dr. Fred L. Jack reports two suppurative cases in the *Boston Medical and Surgical Journal*, 13th April, 1893. In one case he removed the stapes, as it was in a carious state, and its removal cured the discharge and improved the hearing. In the second, improvement in hearing also followed the operation.

In the same number of the *Archives of Otolology*, Dr. Randall, of Philadelphia, describes an attempt to replace an auricle which had been bitten off in childhood. The cartilaginous meatus and tragus alone were present, so that the only cartilaginous tissue available for a flap was that of the auditory canal. This gave support to a large circumscribed flap of skin which he took from the mastoid region, which, when healed, made a fairly shaped, though very small, auricle.

Dr. Deuch reports a case of epithelioma of the auricle in a woman 63 years of age. The tumour sprang from the internal surface of the base of the tragus, and involved in part the inferior and posterior margins of the meatus. It had been in existence eight weeks only, and was looked upon as a suppurating sebaceous cyst, but the tumour enlarging rapidly a portion was snipped off and examined microscopically, when its true nature was revealed. The tumour was excised, the incision being made through healthy tissue, and the wound left to granulate.

From a study of reported cases, malignant disease of the external ear appears to be much more amenable to operative treatment than the same affection of other parts of the body.

A paper on "The Hearing Power of Deaf-Mutes," based on the examination of 175 deaf-mute children, by Dr. J. K. Love, and which he read before the Medico-Chirurgical Society of Glasgow during the past session (see p. 442, *Glasgow Medical Journal*, vol. i, 1893), is here published in full; and there is a short illustrated article by Dr. Robert Barclay, St. Louis, on "The Best Bend of Shaft and Handle in Instruments for Operation in the Depth of the Ear Canal."

There is also a lengthy paper on "Otitic Brain Disease: its Varieties, Diagnosis, Prognosis, and Treatment," by Herman Knapp, M.D., and illustrated by cases under the care of the author.

Interesting details of a "Case of Thrombosis of the Lateral Sinus" are given by Dr. John L. Adams, New York. It had resulted from a neglected middle-ear suppurative catarrh, which had continued to discharge for over twelve months and up to within four weeks of admission to hospital. Purulent infiltration from the middle-ear disease had resulted in circumscribed purulent meningitis and thrombosis of the right lateral sinus. The patient died on third day after operation.

Of the remaining communications, that by Dr. Koerner on "The Propagation of Affections of the Tympanum Through the Carotid Canal into the Cerebral Cavity," is interesting as drawing attention to a possible channel through which pus may and does reach the cerebral cavity from the tympanum, though it adds nothing to our present knowledge on the subject.

"The Anatomical Condition found in a Case of Deaf-Mutism following Scarlatina" is described by Dr. Hehermann, Christiania. The disease appears to have been limited to the labyrinth on the right side, as the membrane and tympanic cavity did not exhibit any sign of having been inflamed. On the left side, however, the middle-ear and mastoid process were extensively diseased, while the semi-circular canals, vestibule, and cochlea were found to be normal.—(*Archives of Otolaryngology*, April, 1893.)

Vibratory Massage of the Middle Ear by means of the Telephone. Dr. Wilson, Detroit.—By means of Bell's hand telephone, the diaphragm of which is caused to vibrate strongly by means of the interrupted current from an ordinary Faradic coil, Dr. Wilson has treated some cases of tinnitus in three out of five reported cases with improvement. By altering the rate of interruption of the current, or by varying the number of cells employed, the sounds produced may be varied in intensity.—(*New York Medical Journal*, February, 1893.)

A NEW and enlarged edition (the fourth) of Field's "Diseases of the Ear" is published, in many respects an improvement on its predecessors.

Books, Pamphlets, &c., Received.

The Physiologist's Note-Book: A Summary of the Present State of Physiological Science, for the Use of Students, by Alex Hill, M.A., M.D. With 36 Plates and Blank Pages for MS. Notes. London: Charles Griffin & Co., Limited. 1893.

Tooth Extraction: A Manual on the Proper Mode of Extracting Teeth, by John Gorham. Fourth Edition. London: H. K. Lewis. 1893.

A Text-Book of Medicine, for Students and Practitioners, by Dr. Adoff Strümpell. Second American Edition, translated and revised by Herman F. Vickery, A.B., M.D., and Phillip Coombs Knapp, A.M., M.D.; with Editorial Notes by Frederick C. Shattuck, A.M., M.D. With 119 Illustrations. London: H. K. Lewis. 1893.

Text-Book of Ophthalmology, by Dr. Ernest Fuchs; authorised translation by A. Duane, M.D. With Numerous Illustrations. London: H. K. Lewis. 1893.

La Pratique Dermatologique et Syphiligraphique des Hôpitaux de Paris, Aide-Mémoire et Formulaire, par le Prof. Paul Lefert. Paris: J. B. Baillière et Fils. 1893.

Manual of Bacteriology, for Practitioners and Students, with especial reference to Practical Methods, by Dr. S. L. Schenk; translated from the German, with an Appendix, by W. R. Dawson, B.A., M.D. With 100 Illustrations, partly coloured. London: Longmans, Green & Co. 1893.

Braithwaite's Retrospect of Medicine. Vol. 107 (January-June, 1893). London: Simpkin, Marshall, Hamilton, Kent & Co., Limited.

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ORIGINAL ARTICLES.

BRIEF PERSONAL SKETCH OF THE MEDICAL
QUADRENNIUM, 1857 TO 1861.*

By WILLIAM WHITELAW, M.D., KIRKINTILLOCH,

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Surgeons of Glasgow.

THE educational institutions which have moulded the mind, and assisted to carve out the future of a man, will never cease to be interesting in his own eyes.

When told that I must address the members of this important Association, the reputation of some of whom is European, I felt that, like Canning's knife-grinder, I had no story to tell. Nothing new, at all events. I have invented no buckle, strop, nor knife; and I have discovered no drug. My remarks, therefore, will be retrospective, and may be entitled, "A Brief Personal Sketch of the Medical Quadrennium, 1857 to 1861."

There was no preliminary registration with the Branch Registrar at Edinburgh in these days. At the University all your preliminary examination, as in my case, was the translation of thirty lines from the fifth chapter of Gregory's *Conspectus Medicinæ*; and the similar examination by the

* Address to the Glasgow Branch of the British Medical Association.

Faculty of Physicians and Surgeons was the translation of half a page from the *Ænid* of Virgil. Professor John Easton took charge of the examination in the University, and Dr. Tannahill did the same at the Faculty Hall. I do not think that it was necessary to pass in Latin before the medical classes were begun; but it was always considered wise to get the Latin examination over.

The student in his first winter usually took the Junior Anatomy class and the class of Chemistry, the lecture-room for the latter being in Shuttle Street. The ruling professor in the University, as well as in his own class-room, was unquestionably Dr. Allen Thomson. Clear, silvery, and distinct in speech, it but reflected his well balanced, full, and yet studious mind. The interests of the real student were ever before him, and one glance of his eyes would subdue both the trifler and the turbulent. Well aware of the raw and uninformed material he had in his class, he used to recommend for the students' private study Hoblyn's *Dictionary of Medical Terms*, and its companion book *Scientific Terms*, so that they might at least have a nodding acquaintance with the words and names in general science. In summer Dr. Thomson gave demonstrations in Embryology and Comparative Anatomy. One summer he spent a few weeks lecturing on the anatomy of the bear, a dead one having come into his possession. To Dr. Thomson's quiet persistent energy in promoting the erection of the University buildings at Gilmorehill and the Western Infirmary, these institutions owe a great weight of gratitude. From its formation, he was a member of the General Medical Council for nearly twenty years.

Dr. Thomas Anderson was Professor of Chemistry, and was much liked by the students. Very few students wrought in the laboratory, and the utmost knowledge that the general body sought to acquire was an acquaintance with the metals and inorganic chemistry, including the most easily understood tests.

The classes of Senior Anatomy and Physiology were taken in the second winter of the medical quadrennium, and the two subjects went well together—the structure and functions of the internal organs being then brought clearly before the student. Professor Andrew Buchanan met his class at 4 o'clock, and by that time of the day the students were generally ready for some boisterous fun. The meeting was in an attic-like room, up two long very circular stairs. Going up the stair one night behind the Professor, when a terrific

din was raging overhead, he laughingly remarked—"There will be murder up there some night."

In the Anatomy class we had only one subject given to write an essay upon at home—viz., "The Homology of the Upper and Lower Extremities;" but in the Physiology class essay writing was more frequent, two of Professor Buchanan's topics being—"What are the Institutes of Medicine?" and "What is the best Food and Drink for the Constitution of Man?"

Dr. Buchanan was a fine type of an all-round man. Before becoming Professor of Physiology in the University, he lectured on *Materia Medica* in the Andersonian College; and in the Royal Infirmary he distinguished himself by his invention of the rectangular staff for the operation of lithotomy. All his literary productions were characterised by great lucidity and completeness. I would point, for an example, to his essay on cholera, published in the *Glasgow Medical Journal* for April, 1833, which any philanthropist with plenty of money might well reprint, and present a copy to every student of medicine. In that essay, which is a record of investigation and experience, he describes the physiology, pathology, and treatment of cholera with a convincing directness that is positively refreshing in this age of manifold therapeutics. Cholera Dr. Buchanan believed to be essentially a disease of the fluids of the body, explainable from the obvious changes that take place in the constitution and qualities of the blood, always bearing in mind that the fluids cannot be altered without involving the action of the solids. The remote cause of cholera he considered to be a miasmatic poison, received into the lungs by respiration. The first signs of a noxious impression made upon the body, he said, were exhibited by the gastro-intestinal mucous membrane. He has seen the fluid exhaled amount to eight pints, the sanguiferous system, as well as the bowels, being drained of serum. Blood drawn from the veins was of an exceedingly dark colour, and of a thick viscid consistence. It coagulated without any separation of serum, and the coagulum retained its black colour. In cases beginning to recover these conditions were, of course, not maintained, the serum being partially restored to the blood, and urine being secreted. Granting the worthy professor's pathology, an obvious clue is given to the means of cure—viz., (1) The re-absorption of serum from the cellular substance and the great serous cavities; (2) the absorption of fluids from without; and (3) the excretion of bile by the liver acting again upon the dark

blood in the body. The urgent thirst of the patient must be satisfied if he is to be cured.

In the diarrhœal period he would allay the flux by an opiate, and rest in bed. A warm bath and cordial diaphoretics he approved of. Venesection, he predicts, in dreaded cases, would be useful at this initial stage, by diminishing the likely excess of black blood.

When the case is going on from bad to worse, Dr. Buchanan says that the physician must set himself only to aid nature's processes—not to impede them. The sick-room should be supplied with fresh, cool air, and liquids should be applied to every surface capable of absorbing them, without officiously fatiguing the patient. If the body be cold, do not apply dry heat, thereby causing more evaporation from the flaccid skin, but apply cloths moistened with tepid water. If the patient prefers his drinks warm, let them be warm. A good drink is thus composed:—Beat up a raw egg with half a pint of milk, then mix with a pint and a half of water, and salt sufficient to be agreeable. Or you may give whey, milk, and water; with a further change of weak chicken soup. When the stomach is very unstable, an infusion of mace may be supplied. When you suspect gastritis, the liquids must be given more sparingly, and copious enemata of warm milk may be administered, and repeated after expulsion. These mitigate abdominal pains, and supply a liquid that may be absorbed. In an unchecked case of cholera, Dr. Buchanan deprecates the use of mercurials and opium. The latter, he says, lulls nature asleep, suspends the action of the absorbents and the excretion of bile, on which recovery chiefly depends.

The liquid in which Dr. Steven's saline powders have to be dissolved is the most important part of the remedy, the large quantity of saline matter often exciting vomiting. Stimulants by either mouth or rectum, in more than the merest cordial quantity, are highly injurious. Nature, concludes Dr. Buchanan, abhors all violent remedies in this disease; she effects a cure by slowly restoring the constitution of the liquids of the body, and she will not admit of any practice but that founded on her own principles.

At the end of his second winter at the University, the student, provided he had taken the Botany class in the previous summer, could go up for his examination for the half of the medical degree. If he had not the Botany class previously, he would attend it in his second summer. Walker Arnott was the Professor, and the class-room was in the Botanic Gardens. This class was often a scene of fun and

disorder. The ruffing and applauding of poetical quotations applied to flowers was so long and ludicrous, that about that time the Professor had considerably to curtail his selections from the poets. It is said that Walker Arnott was not only a good botanist, but an excellent mathematician. His manner on the whole was quiet and dry, and the students feared his plucking propensities, over which Dr. Allen Thomson was believed to exercise a rational restraint. The student having passed his half, entered upon his third winter in a cheerful frame of mind. The mountain was not yet scaled, but he was getting upwards. The Practice of Medicine class in the forenoon, the Materia Medica class at two o'clock, and the Surgery class at five, now occupied his attention. Dr. John Macfarlane—"Honest John"—was the Professor of Practice of Medicine. He was indeed a lovable, unobtrusive man. Although his lectures bore a family resemblance to the celebrated lectures of Dr. Thomas Watson, of London, they were diversified by bits of Dr. Macfarlane's own experience, and he always suggested some treatment. It is typical of the man of the period that Dr. Macfarlane, in his younger days, was a surgeon in the Royal Infirmary, and published a volume of Reports. Later on he contributed to the *Glasgow Medical Journal* on such subjects as "Cramp of the Stomach," "Polypus of the Uterus," and "Diseases among the Poor."

Dr. John Easton, Professor of Materia Medica, was both edifying and diverting. In his remarks on drugs he managed to mix up not only therapeutic hints, but often anecdotal, literary, and medico-legal allusions. He was wont to arouse the enthusiasm of his students by quoting the well known passage from Edmund Burke—"I was not, like His Grace of Bedford, rocked and dandled into a legislator; *nitor in adversum* is the motto for a man like me." When lecturing on cathartics, he gave the familiar illustration of the dog eating long grass by the wayside. Then again, in his lecture on blood-letting for pneumonia, he sparingly recommended the lancet. "You may take away blood," he said, "but a whole Royal College of Surgeons will not replace it.

"Facilis descensus Averni,
Sed revocare gradum,
Hic labor, hoc opus est."

He was a dapper little man, and his many contributions to the medical press, including valuable articles on the catalytic action of drugs, were marked with great accuracy and literary taste.

Dr. Pagan, Professor of Midwifery, lectured at three o'clock, and, owing to his professional engagements, was frequently absent. I never knew a man who laughed so pleasantly at his own little jokes; and yet he could be serious at times, for he wrote a book on such a melancholy subject as the *Jurisprudence of Insanity*. In summer he gave lectures on the diseases of children, and as these were free they were well attended. He had a great love for scammony, "but," he said, "be sure and get it good. You will find very often the scammony you get in the shops adulterated with"—here a long pause—"in fact, you will not get scammony at all." Dr. Druitt, in his work on *Surgery*, says that the renown of a country doctor often depends on his ability to draw a tooth. To many in the West of Scotland Dr. Pagan's reputation was based on his famous pill. Here is its formula:—

R.—Ext. coloc. co.,	.	.	.	.	.	℥ ii.
Ext. jalapæ,	{	.	.	.	.	āā
Pil. rhei,		.	.	.	.	℥ i.
Pulv. scammon.,	{	.	.	.	.	āā
Pulv. aromat.,		.	.	.	.	grs. viii.
Ext. hyoscyam.,	{	.	.	.	.	āā
Sapon. Hispan.,		.	.	.	.	grs. xvi.
Divide in pilulas xxiv.						

Dr. Lawrie lectured on Surgery at five o'clock, of course by gaslight. He had distinguished himself in India, and after coming home made personal investigations into the causes and extent of cholera in the West of Scotland, including my native town. In the Library of the Faculty of Physicians and Surgeons there is a pamphlet in which he recounts his visit to Kirkintilloch during the epidemic, and describes the feared aspect of the inhabitants as they peered through their windows at him and the other doctors passing. Lawrie read his lectures rapidly, his whole movements were agile, and his use of the knife was like the sleight-of-hand of an Indian juggler. In his demonstrations on the dead body, his amputation of the thumb with one stroke of the knife was always applauded by the students.

Jurisprudence would seem to be the natural termination of the subjects of the medical curriculum, and found a careful exponent in Dr. Harry Rainy. Thoughtful and judicious, he reminded you of a Lord of Session on circuit. Like his well known son, he was an ardent Free Churchman, and he has been described, in a jubilee volume by Dr. W. G. Blaikie, as one of Dr. Chalmers' boy elders.

The surgeons in the Royal Infirmary during the time I refer to were—Dr. George Buchanan, still happily with us; Dr. William Lyon, Dr. Eben. Watson, Dr. R. T. Corbet, Mr. Watt, and Dr. James Morton. I was dresser for Dr. Eben. Watson, and in my opinion he excelled as an operator for lithotomy in children.

The physicians were—Dr. Thomas Watson, who became almost blind; Dr. Easton, Dr. Joseph Bell, Dr. Scott Orr, and Dr. Tannahill. Easton had a large attendance of students both in the lecture room and at the bedside. One day he questioned a student on the symptoms of pleurisy. "Pain," said the student. "Where?" said the doctor, "in his big toe? always be precise."

Virchow's cellular pathology was all the rage then, and Dr. Joseph Bell began to give pathological demonstrations in the clinical class-room. These were crowded by the students, and as a mark of their gratitude they presented him at the close of the session with an address and a silver salver. Pathology is now, very properly, one of the subjects for the medical degree, and is worthily taught in Glasgow.

Shall I say, "The former times were better than these?" Yes, and No. Yes, in that the directness and practical character of the old medical teaching brought the mind of the fairly attentive student easily on to a parallel with that of his professor, and plucking was therefore not so common as to disparage both teacher and taught. No, in that under the old regulations there was a deficiency in clinical instruction and an absence of training in microscopy, ophthalmology, and dermatology, and gynæcological work. To quote worthy Allen Thomson's advice to his students, "Get all the knowledge you can, but keep in mind the essentials." Let us remember kindly the old professors. They were up to date. Now

"Their bones are dust;
Their lancets rust.
Their souls are with
The saints, we trust."

FRIEDREICH'S ATAXIA.*

By J. WALLACE ANDERSON, M.D.,
Physician to the Hospital.

I WISH to direct your attention to-day to two cases which you have seen once or twice in the Ward, a brother and sister who were recently admitted as suffering from chorea. You have already noted that each patient is affected with a slight jerking or twitching of the limbs, especially when spoken to, and that this is gradually disappearing as they are becoming better acquainted with us. I also pointed out to you yesterday that the mother stated they had both presented the same symptoms since they had an attack of measles two years ago, and that the disease has persisted since then without any intermission. What is more particularly referred to as the disease you only discover when you make them walk. You notice that they both have an extremely unsteady gait, more especially the boy, who seems to be always about to fall unless firmly supported.

Now, most of you are familiar enough with chorea to know that it is hardly ever continuous over a period of two years, and that it is very rare to find the lower limbs so greatly implicated, while the upper are hardly affected at all. I may add, also, that it is not very common to find two members of the same family affected by it simultaneously, although, no doubt, it not unfrequently spreads by imitation. I want you further, before taking up each case in detail, to notice the character of the unsteadiness. If I may so express it, the want of balance seems to be in the trunk or upper part of the body. It is not the legs that take the initiative, as they do in ordinary chorea. You have not here the characteristic jerking and twitching of the limbs by fits and starts, but an effort on their part to meet the unstable equilibrium of the body. The children can hardly walk, and yet, when you make them sit on a chair, their lower limbs are virtually quite still. Let us now select from the Ward Journal material sufficient for an outline of each case.

Peter S., aged 12, was admitted to Ward VIII on the 25th April, 1893, suffering from chorea. The present illness began two years ago, immediately after an attack of measles, complicated by a rather severe bronchitis. His mother noticed first

* A Clinical Lecture delivered in the Glasgow Royal Infirmary.

that while he was still confined to bed he inclined to fall backwards on sitting up, and when he began to try to walk it was noticed he could not do so, even for a few yards, without holding on to something. He has also from the first had difficulty in using his hands properly.

The family history, which applies, of course, to both children, is of a negative character. Both parents are living and in excellent health, and no nervous affection is known to have occurred in the family of either, with the exception of an attack of St. Vitus's dance in a niece of the father. But besides patient's sister, there is also the younger brother, whom you saw a day or two ago, who had a slight attack of infantile paralysis of the right side, resulting in permanent shortening, atrophy, and some loss of power in both the arm and leg. As to Peter's personal history, the account given by his mother is not very clear, but he appears to have been always of small and feeble build, though not the subject of any special disease until the attack of measles already noted.

Looking at him now, you would certainly not suppose him to be 12 years of age. You would guess him to be 6, or perhaps 7, and your first impression, from his rather vacant look, would be that there is some degree of mental deficiency. The occasional twitch of one or other side of the face, the way in which he frequently hangs his head to the left side, and his drawling speech, all tend to convey that impression. But nurse says he is not silly; she would rather call him "roguish." The conclusion we come to is that he has the ordinary intelligence of a country child of the age he looks. In addition, you note that he has a convergent strabismus of the left eye, and that there is occasionally a slight rapid oscillation of both eyes. This has generally appeared to me to be a true nystagmus, a fine tremor on deliberate movement of the eye. Occasionally, however, I have suspected that it might be choreic.

Now, I want you again to notice more particularly how he walks. The body swings from side to side, and the legs will not move with sufficient rapidity to maintain his balance. Indeed, you observe there is a considerable degree of rigidity; he has what is called a spastic gait. Further, you notice the feet are considerably inverted; that is to say, he is in-toed; while there is some inversion also of the soles of the feet. In other words, he has a slight talipes varus.

Let me now read to you a short note made by myself on Peter's case a few days after admission. I have been almost

unconsciously leading you away from the diagnosis of chorea; the note introduces an alternative:—"On making the patient walk this morning, one is compelled to admit that the case presents a closer resemblance to locomotor ataxy than to chorea. The gait itself is exactly like that of a bad form of locomotor ataxia. The difficulty seems to be entirely one of balance; he walks exactly like a drunken man, falling to one or other side. There is little of the irregular jerking of the legs that one finds in chorea, but a good deal of rigidity; in other words, it looks as if the lesion were not confined to the posterior roots, but had already extended laterally. On the other hand, shutting the eyes does not seem to aggravate the inco-ordination, and with a little care the knee-jerk can be distinctly elicited."

These last two sentences again lead us rather away, as some of you know, from the idea of an ordinary *tabes dorsalis*; and of the correctness of these two statements I have completely satisfied myself.

As to the power of direct movement, there is no doubt that it also is impaired. The grasp of the hand is weak, and, when he rises to the erect posture, we notice that there is slight paresis of the muscles of the trunk and lower limbs. We cannot attach much importance to this, however, as an element in the diagnosis, on account of the long continued feebleness of constitution. There is no atrophy, at least of any set of muscles.

But notice again how he keeps his head. It almost lies on his left shoulder. Yet it is not kept constantly so, and his mother does not seem to have observed it at all. It is not dependent on any spinal curvature, but is rather to be associated with those slow rigid movements that you notice of the fingers. Look at his hands. One, and now a second, finger are stiffly extended; and now again the thumb is being tensely abducted while other fingers are opening. He has, in fact, got a slight degree of what Hammond has styled *athetosis*. You see the same thing, though to a less degree, in the toes. At one time the great toe is extended, while the others make a movement of flexion; at another time this is reversed. No doubt the head is at present resting on the shoulder; but I think I have previously directed your attention in the ward to a slow rigid movement of it also, with an occasional twitch of one or other facial muscle. It was this condition of unrest which led Hammond to give this symptom the name *athetosis*, which signifies "without fixed position." Occasionally, however, there is the sudden jerk of limb, or twitch of mouth or

eyebrow, that indicates the choreic element. And so, while he can, it appears, with some effort put on his clothes and pick up a pin from the floor, he cannot convey a cup of water very satisfactorily to his mouth; indeed, nurse declares he cannot properly feed himself. He is slow of speech, but that, I think, is natural, and not that there is any real drawling or "scanning" speech such as occurs in certain forms of disseminated sclerosis.

Passing now to the sensory symptoms, we find there is little to be noted. The various cutaneous sensations appear to be normal. The muscular sense is not impaired, at least as regards location; but I have not attempted to test the appreciation of weight, as I doubt if we could make much of his replies. He says he has never felt pain in the limbs; but, according to his own statement, he has never had any pain anywhere. It is perhaps not surprising that I have failed to elicit the presence of the "girdle sensation" or any form of *crisis*.

I have already spoken of the knee-jerk as being feebly present. The deep and superficial reflexes appear to be normal. The pupils respond readily both to light and to accommodation. He has no difficulty in swallowing, and there never has been the slightest loss of control over bladder and bowel.

And now we come to a very important element in his case. Although there is this marked ataxia, he has no vertigo. You have seen him rise from the sitting to the erect posture, and the only disability perceptible was the degree of direct muscular weakness to which I have referred. You noticed just the suggestion of the "climbing of the thighs" characteristic of pseudo-hypertrophic paralysis, but not a trace of giddiness. We have frequently asked him if, for example, he has ever felt giddy on lying down or on sitting up in bed, and he has invariably said "No." Nor have I myself seen at any time the slightest indication of it. But I shall refer to this again in a few minutes.

I have left myself little time to speak of the case of the sister Phemie, but I may say, at the outset, that it is simply a milder form of her brother's case. She may be said, in a word, to illustrate the essential features of the disease, and negatively to show what is occasional and accidental in it. She is eleven years of age, and you observe at once that, unlike her brother, she is healthy and well nourished. You see she is much taller and older-looking than the puny Peter.

Unlike him, she enjoyed perfect health till the attack of measles, which she also had two years ago. Only in one respect does her previous history agree with his, namely, that she too was always considered a rather nervous child, and was long in learning both to speak and to walk. A weakly constitution therefore is not an essential.

Like her brother, she has never had rheumatism or scarlet fever. The attack of measles in her case was of a very mild type and she was confined to bed for only a few days. It was when she began to go about again that her mother noticed that she too walked unsteadily, the feet becoming inverted so that the one was apt to catch on the other as she walked. With the exception of the absence of strabismus, and also, so far as we have seen, of nystagmus, all the other symptoms are simply a mild counterpart of Peter's. There is the same tendency to spastic gait and to talipes varus. You find the occasional choreic twitch, or again the slower spasmodic movement of athetosis. There is the faintly marked but still quite distinct knee-jerk, and there is the absence of all pain. Indeed, she presents no feature that her brother does not to a greater degree.

These two cases are, so far as I know, the first recorded examples of Friedreich's ataxia in Scotland. The disease was first described in 1861 by Friedreich, who reported six cases, but the number reported up to the present time must now be nearly two hundred, if we include all that have occurred on the Continent, and in England and America. The only definite statement, however, as to the reported cases that I can find is that of Dr. Dana, who says that up to 1890 one hundred and sixty-five cases have been noted.*

As to the diagnosis, there is first of all the ataxia, chiefly of the lower limbs. That is the essential feature of the disease as presented by our patients; and it is associated with a distinctly spastic gait. Then there is the age of the patients. It began in the brother when he was ten years, and in the sister when she was nine years of age. Ordinary *tabes dorsalis* is, as you know, a disease of middle life, although in exceptional cases it may begin shortly after puberty. Further, we have here two members of a family attacked; this is certainly very rare as regards ordinary *tabes*. These characters, we may say, then, constitute the basis of the diagnosis. We must exclude chorea altogether. No doubt there are choreiform movements, but these are of the mildest type,

* *Keating's Cyclopaedia of the Diseases of Children*, vol. iv, p. 716.

and there is much here from which even aggravated chorea is perfectly free.

With regard to the knee-jerk, I must repeat that I have distinctly educed it several times, though to a very slight degree. I specially note this, as it is considered to be invariably absent in this affection.

One would like to say next that this is not a case of cerebellar disease, founding that opinion on the complete absence of vertigo. But, unfortunately, our knowledge of the cerebellar function is too limited to admit of the statement being put in that way. I can only state the fact that there is no evidence of there being the slightest giddiness in our two cases. You will find that vertigo is considered to be a later symptom of Friedreich's ataxia, so is nystagmus; but I do not think that anyone can say of either symptom that it necessarily indicates that the lesion is higher than the spinal cord. But while the question of cerebellar disease is far too wide to be discussed here, I cannot help referring you to a most interesting and instructive paper on this subject by Dr. Fraser, of Paisley (*Glasgow Medical Journal*, March, 1880). My attention was first of all directed to an earlier record by Dr. Fraser of his two cases, a brother and sister, which led me to think that they also might have been examples of Friedreich's ataxia; but in the later paper above referred to, there is an account of a *post-mortem* on the brother's case, which proved it to be one of cerebellar defect. I hope you will be able to study the paper for yourselves. You will find that while both brother and sister had a reeling gait, it seemed to depend essentially on vertigo. As regards the brother, "in reference to the reeling, which was so marked a peculiarity of his gait, his own opinion was that it was due to his 'head being light.'" As to the sister, "when she lies down, 'puts her head on the level,' as she terms it, she becomes giddy, and states that her eyes 'glisten,' and that she cannot see the clock which hangs within her view."

Now, in our two cases the children are too young to give us an exact description of their difficulty. I do not know if walking is to them quite like promenading the deck of a vessel in a moderate sea, *plus* the stiffness in the legs, but we can certainly quite conceive this sensation as entirely apart from any vertigo. All I know is that they have never complained of giddiness, nor have they exhibited any symptom of it since admission. When they are made to stand with the feet close together, there is some degree of static ataxy noticeable; in other words, they sway a little from side to

side. Sometimes this swaying is slightly increased by closing the eyes; at other times it is not. Certainly this feature is not so marked as it would be in a case of adult *tabes dorsalis*, characterised by the same degree of inco-ordination.

The twitching of the hands, but especially the contracture of the feet, amounting, as it does here, to a slight degree of *talipes varus*, the absence of pain, and the presence of *nystagmus*, are the other outstanding features of the disease.

As to treatment, it can, unfortunately, be only of a general character. We have no means of arresting the disease, but we should do all we can to maintain the general strength, and avoid all forms of fatigue.

SMALL-POX AND ITS PREVENTION.*

By A. K. CHALMERS, M.D., D.P.H. CANTAB.,
Medical Officer of Health for the City of Glasgow.

THE original intention of this paper was to introduce a discussion of the questions which the occurrence of small-pox in vaccinated persons suggested. These would chiefly have dealt with the extent and duration of the protection afforded by vaccination, for it was an almost unparalleled circumstance that, while the Legislature of this country were about to relax the stringency of the vaccination laws, those who were most brought into contact with small-pox were disposed to seek a more stringent definition of the process by which the aim of vaccination might be secured. More especially I had intended asking your attention to a clinical definition of the term "protective vaccination," in view of the occurrence of cases of small-pox sickening from ten to twenty-one days after the operation of vaccination was successfully performed.† I had intended, further, endeavouring to show that this did not by any means imply a negation of the protection afforded by vaccination, but demanded rather a more careful consideration of the process by which vaccination might be assumed finally to afford complete protection against the ordinary risks of infection. With this view I

* From notes of a communication made to the Preventive Medicine Section of the British Institute of Public Health, Edinburgh Congress, 1893.

† See note.

had intended citing an example * of successful revaccination repeated after a short interval, for it affords, I believe, an answer to the question which the occurrence of small-pox after revaccination raises.

We are all familiar with the popular impression regarding vaccination, and it is doubtful whether in practice we get much beyond it. In the language of the country, a child is "cut for the pock," and is legally protected; but just as you cannot cover an acre of ground with a handful of seed, so an implicit reliance on the mere act of vaccination, without relation to the method of its performance, is just as certain to leave gaps in the protection afforded as there will be unfruitful spots in the cornfield. From this it follows that not only vaccination, but repeated vaccination, vaccination, moreover, which has some definite relation to the number of insertions and their distribution—this, rather than the mere scratching in of a variable amount of vaccine lymph, is what finally must be regarded as in any way worthy the definition of protective inoculation.

Apart from vaccination, however, there are other aspects of the question of prevention which, in the actual presence of the disease, demand prompt action on the part of sanitary authorities; and as the circumstances in which cases occur vary greatly, so it is found to be impossible to attain identity in the methods of dealing with the different channels through which infection may pass to the unprotected. Put in general terms, however, these methods have in view (1) isolation of the sick, and (2) supervision of those who have presumably been exposed to infection.

Before considering these more in detail, it will be well to arrive at some clear conception of the circumstances which attend the disease, and render a small-pox patient dangerous to others.

For this purpose I shall assume that in any individual patient the power of imparting the disease begins with the initial malaise, and ends only when the last crust or pocket of dried vesicular contents is shed. I have no personal knowledge of contagion existing prior to the development of symptoms—*i.e.*, during the period of incubation—although I am aware that some observers, particularly in Germany, are disposed to regard this as possible. Within the limits, however, which I have here given to the infective period, it will be manifest that two conditions exist, which I shall now attempt to distinguish. In the pre-eruptive and early

* See note.

popular stage, we know that the expired air is infectious, and I think we are warranted in assuming that the emanations from the skin are so also; that is, both the patient and his clothing, with whatever article of domestic use he handles, are capable of transmitting infection, the clothing and other articles acquiring this power in a degree proportioned to the time of exposure. A patient in this condition in a bedroom will rapidly convert it into an infected area, and in general terms it may be stated that any one brought into personal contact with one in this condition is exposed to infection. [Reference was here made to a diagram tracing the point of contact with infection of several patients who had suffered from small-pox. One example was selected as indicating the remarkably short period of exposure required for infection. It was the case of a man who had only a passing conversation with a small-pox patient (then in the fifth day of the disease) in the waiting-room of a public dispensary, and who himself sickened of small-pox on the twelfth day thereafter.] What I wish specially to insist on here is that it is the patient and his immediate surroundings which constitute the centre of infection, because I have before me instances where a process of disinfection sufficient for the condition I have described was rendered abortive from the existence of infection in a much more permanent form. This leads, therefore, to a consideration of the conditions created by the fully developed illness with its accompanying desiccation of the contents of the vesicles and their separation as crusts. The infection now ceases to belong specifically to the patient, but remains wherever he has been. He loses none of his directly infective power it is true, but has the acquired power of disseminating the disease beyond the range of personal contact.

I could give you innumerable examples of solitary cases removed to hospital in the first condition I have described, or cases where the only examples of secondary infection occurred among those of the same household, or who had been in attendance on the patient; and in contrast I ask you to look at this diagram of an outbreak following the retention at home of a case during the first ten days of an attack. [The diagram here referred to traced the origin of eleven cases (implicating six households) to the one just mentioned. Of these eleven cases, seven occurred in three households of the same tenement, and four cases in persons living elsewhere. The seven cases just mentioned had not been brought into personal contact with the first patient, while the other four

had visited and held conversation with him. Other similar examples were given, which need not be detailed here.]

Viewing, therefore, the question of isolation in the light of these facts, it is manifest that to be efficient it must be done in a definite way, and that is by removal to hospital. Any disposition to regard the demands of isolation as being satisfied by restricting the patient to one room is to be repressed as dangerous. The effort, which was sometimes made in these circumstances, to erect a chemical barrier to the exit of infectious matter suspended in the air, by hanging a carbolised sheet over the doorway of the room, was futile. Air at the ordinary temperature could not take up sufficient carbolic acid to render the admixture, in any sense, germicidal; and if success did sometimes attend this procedure, it was by virtue of an insusceptible cordon of well vaccinated persons surrounding the sick. To this, rather than the carbolised atmosphere, is the success due.

In outlying districts unprovided with permanent hospitals, the patient's house, *provided it were a detached one*, might be made to serve the purpose, but the other members of the family should be accommodated elsewhere, and an intelligent attendant placed in charge.

The next factor of importance in controlling the spread of the disease, is supervision of those who have been exposed to infection. This supervision should be precise in its method, and be continued for a definite time. In Glasgow we had not found any one sickening of small-pox at a longer interval than fourteen days after the last known exposure. Supervision meant daily examination, because of the exceedingly mild and transient character of the symptoms which sometimes indicated the presence of the disease in persons who had been exposed to infection before being revaccinated.* In some instances this supervision could be perfectly well done at home under the private medical attendant, but it was usually necessary to remove them to a reception-house for the purpose. This supervision did not by any means imply interruption to the usual employment of any of those placed under it, rather because of it, indeed, it was frequently possible to assure

* A striking example of this was afforded by one of the group of eleven cases just mentioned. Mrs. M'F. was known to have been exposed to infection, and was revaccinated. On the eighth day thereafter she felt ill, and went to bed. On the second evening *one* spot appeared, and shrivelled from the papular stage. Without the history of exposure I believe it would have been impossible to recognise the nature of her illness.

their employers that such persons might, with perfect safety, be allowed to continue at work.

There is one phase of the social economy of the present day where, however, individual supervision, as thus described, is impossible. This is in dealing with the lodging-house population. The inhabitant of a model lodging-house of the present day is not quite the compeer of "the sturdy and valiant beggar" of Tudor legal phraseology, but in some respects he is more interesting, because he is more untrammelled in his movements, and consequently more dangerous as a carrier of infection. When such an one contracted small-pox, and spent, as now and again would happen, some days in a model before recognition, it was perfectly certain that many of the 400 or 500 who were his fellow-lodgers would be exposed to infection. The location of his bed helped somewhat to determine the probabilities of exposure for those who slept in his immediate neighbourhood, but for the majority of the inmates it was quite impossible to put your hand on any one man, and say, "You more than any other have been exposed to infection." This uncertainty, therefore, introduced a difficulty. At the beginning of the outbreak, and before the public mind had become accustomed to regard the possibility of small-pox infection merely as an incident in everyday life, any overt attempt to supervise one of the lodging-houses was likely to be followed by a dispersion of the inmates, and a probable multiplication of the foci of infection. Consequently a system of inspection by educated lay help was begun, and attended with success, in the early recognition of cases. Where it failed was from a too implicit reliance being placed on the statement made, in most text-books, and generally accepted, that the first indications of the eruption are to be found on the face and wrists. That statement, we have learned, is liable to many exceptions, especially in the milder forms of small-pox.

The migratory habits of a large section of this population further interfered with strict supervision of the individual. In Glasgow somewhere about 5,000 persons sleep nightly in these model lodging-houses, and of this number about one-fourth are "casuals"—*i. e.*, they may change their residence nightly. It has recently been suggested, and more especially from one quarter, which, from its eminence, will ensure careful consideration of the proposal, that because epidemic disease, and more especially small-pox, is so closely associated in its spread with the movements of this class of the population, an intelligence bureau, or some corresponding system, should

be established by which their movements might be traced. My personal opinion is that much energy would be spent in verifying or correcting the information thus given without commensurate result. In Glasgow small-pox had been introduced into somewhat over a dozen of these models, and in some of them it was introduced time after time; but in two only did cases occur in such a manner that the house fell to be dealt with as an infected area. [A diagram showing the succession of cases which constituted this condition was shown. The dates of sickening were so related as to suggest a common origin, such as would be supplied by the unrecognised temporary residence of one in the second period of infection which I have previously described.] Both houses were dealt with by having them thoroughly cleansed, and by suspending the admission of new inmates for a period of fourteen days from the occurrence of the last case. In one of these houses no case has since (after four months) occurred; in the other a period of months elapsed before small-pox was again introduced.

What I have said of supervision might be compressed as follows:—

1. In dealing with a family or domestic group where all the individuals are known to have been exposed to infection, let your supervision extend to every individual member of it.
2. In a lodging-house such as I have described, turn your whole available energies on the house rather than on the ebb and flow of its inmates.

Note A.—The rôle of vaccination as a protective agency was, as has been said, definitely excluded from the scope of this paper, but it was introduced into the discussion which followed, and a reference was made to the very liberal manner in which the Health Committee of this city had interpreted their responsibility to the community, by making an offer of free vaccination to all the inmates of model lodging-houses. The wisdom of this resolution was shown by what followed. Before it was carried into effect the cases were largely supplied by this class of the population; afterwards, the proportion rapidly decreased.

Note B.—I here append, in the form of a table, such particulars as will serve to illustrate the variety of small-pox which occurs after recent vaccination. For the clinical features I am indebted to notes supplied me by Dr. Marsh, resident medical officer, Small-pox Hospital.

Name.	Age.	Number of days elapsing between date of successful re-vaccination and initial symptoms of small-pox.	Particulars of Illness in regard to	
			Pre-Eruptive Symptoms.	Nature and Course of Eruption.
M. T.,	38	10	Mild; no backache.	Rare†—drying at end of modified vesicular stage.
P. G.*	4	14	None.	Do. do.
H. K.,	10	11	Mild; no backache.	Pocks, 12 in number, drying early in vesicular stage.
J. K.,	26	21	Do.	Pocks, 5 in number, shrivelling during papular stage.
D. A.,	63	10	Slight back-ache only.	Sparset in amount. Many of the pocks went through all the stages, and desiccated after typical pustulation; other pocks on the face and fore-arms desiccated during vesicular stage.

* No evidence of primary vaccination.

† These terms are taken from a definition employed by Dr. Russell in two papers contributed to this journal in May, 1871, and November, 1872, entitled respectively, "Revaccination," and "A Study of 972 Cases of Small-pox."

Successful Repeated Vaccination.—R. N., male adult, previously re-vaccinated, was vaccinated on 2nd March, 1893. Three vesicles formed, following natural course.

On 21st May following he was again vaccinated, when four vesicles formed, and followed course similar to the above.

A FEW INVESTIGATIONS AND RESEARCHES ON DIPHTHERIA, EXTENDING FROM 1874 TO 1893.

By WILLIAM ALLISON M'LACHLAN, M.D., DUMBARTON.

THERE are few diseases concerning which so much has, during the last quarter of a century, been written as diphtheria. Its varied manifestations afford considerable room for diversity of opinion and speculation as to its cause, natural course, complications, and treatment, some looking upon almost every form of pseudo-membranus sore throat as of diphtheritic origin, while others, and these I think wisely, relegate such

manifestations to another category, and consider only those local lesions diphtheritic which exhibit true fibrinous exudation, and which have a specific origin, and can be communicated from individual to individual, and at times from one species to another.

Nineteen years of practice in the town of Dumbarton and its vicinity have afforded me many opportunities of meeting with this disease in its simple and more malignant forms, and to this, if I add fourteen years' experience as sanitary medical officer of the sparsely-populated, farming, and cereal-growing, agricultural parish of Cardross, I can lay claim to have met with several well-defined localised epidemics of this illness.

I need not here enter upon the clinical description of the disease. That is sufficiently well known already. It is, however, a disease that manifests itself in many forms, and is quite as liable to exhibit itself at one season of the year as another, provided the cause of it be in operation.

The *cause* of it can in most cases, if enquired carefully into, be found to be due to defective sanitation, especially to the contamination of rooms, water, milk, and fluid albuminous food generally, with sewage gas or the germs contained therein.

As a well-marked instance of the insanitary condition of a water supply of a district, which was contaminated with sewage, being the cause of an epidemic of the disease, let me instance what I shall term the Geilston epidemic of 1879.* This village is situated in Dumbartonshire, on the banks of the Clyde; the soil is gravel superimposed upon the old red sandstone; the water supply was from two sunk wells that were situated in the immediate proximity of a burn—viz., the Geilston burn, which took its origin on the hill side, about 1½ mile from the village, and which in its downward course had, in addition to the surface water of the natural watershed of the district, added to it the sewage unfiltered of Darleith house and the home farm, the sewage of Auchinsail (two farms and cottage), the sewage of Drumhead farm and Castle and offices, Kirkton farm, Kirkton cottage, the ooings from the old graveyard, Glen cottage, Geilston house and offices, the old mill, and a couple of cottages and ash-pits in its immediate proximity, after which it swept beneath the arch of the highway, curved round the foundations of the village washing house and rushed on to the sea.

In the centre of a triangular space—the base for about 10 yards being the burn, and the sides extending for the same distance to the dwelling-houses—was situated the village well,

* See Ground Plan of Burn, section A.

from which the tenants in three tenements drew all their water for culinary purposes, while further along, and removed about 20 yards from this well, was another of the same sort, from which the remaining inhabitants of the village drew their water supply.

An epidemic of diphtheria of a very severe type broke out among this little community. It was, however, observed that it was confined to those who drew and used the water from the well in immediate contiguity to the burn. An analysis of the water was obtained, and it was found to be contaminated by the sewage which had found its way from the contiguous burn into it. This well was shut up, and with its closure there occurred a cessation of the extension of the epidemic. Meanwhile, well No. 2 was fulfilling all the wants of the community. An analysis of it was also made, and while it conveyed a shade of suspicion of impurity, this was not sufficient to warrant one in applying to it the closure. However, shortly after this there was run up a short way from it a wooden byre, into which were brought some cattle and a pig. The manure and staling from these were allowed to accumulate outside the byre, and gradually saturated the soil; the result was that the surface water percolating through this found its way into well No. 2, and again there broke out an epidemic of diphtheria. An analysis of this well was then obtained, and it was found to be highly contaminated with nitrogenous impurities.

After this, water by gravitation from a pure source was conveyed from a distance, the result being that, except on one occasion, there has been no recurrence of this disease among these people.

I was curious to know the cause of the return of this epidemic, as the well had been closed and the general sanitary aspect of the place improved; but it came to my knowledge that, during a temporary interference with the gravitation water supply, a cowfeeder, unwilling to carry the amount of water he required to wash his milk utensils from another source about 300 yards off, put one of the suckers in the condemned well, and drew off enough water to wash his milk pails. The milk collected with these pails and distributed caused the reappearance of the diphtheria. Since that time the local authorities have destroyed these wells, and there has been no diphtheria in this place.

As another instance of this disease being propagated by water, let me cite the case of Campbell, of Cardross Park Lodge.*

* See Ground Plan, section E.

In this instance most of the members of the house were attacked. This house is isolated from any other. The draw pump was situated against the gable of the house; where its sunk pit was situated no one knew. The water was carefully analysed, and found to be highly charged with organic matters. Ultimately it was discovered that the sewage of the house had percolated into the ground in the immediate proximity of the pit of the well. Into this house also the gravitation water was led, and since then there has been no diphtheria.

Let me cite another case, and in doing so I may say that Craigend House is situated at the lower corner of what has been for many years a pasture field. A stone dyke separates the house from the field, and beyond the dyke, about 5 yards into the field, is sunk a draw well. It is sunk through the surface gravel, then through rock to the depth of 50 feet. This well had, by the sanitary inspector, been examined and found correct. It was, indeed, looked upon as one of the best wells of the district, and was thoroughly taken advantage of by all the residents in the vicinity. Diphtheria, however, broke out in the Craigend House. There was nothing in the house that one could lay hold on to account for it, but it was found that the surface soil of the contiguous grass park had been shortly before dressed with short manure, and that a few wet days had followed. The well was suspected, its water was analysed, and in it was found evidence of manural contamination. The use of the water was for a time prohibited, and the future pollution of the well protected against. It became again pure, is now used, and no evidence of diphtheria has been since present in the vicinity.*

Yet another instance. Cardross Station houses are two in number; each has its separate well. Diphtheria and typhoid fever broke out, and recurred again and again in two of the families who occupied one of the blocks, while the others were free from it. Both blocks had most things in common: their milk and food supply came from the same source, yet the one block escaped, while the other suffered severely. Neither house had any drainage connections inside, their sewage being deposited outside; so they appeared in every way similar, except in their water supply. An analysis of the well used by the stricken block was made, and the water was found to be contaminated with sewage—the sewage percolating directly from the midden. This well was shut up,

* See Ground Plan, section C.

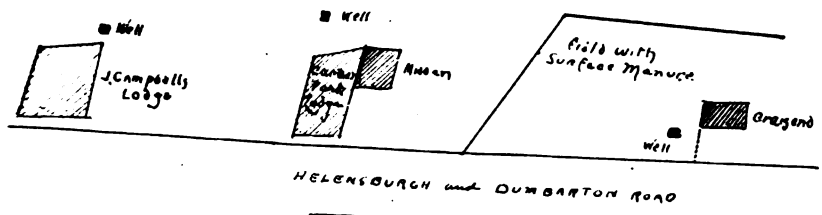
gravitation water introduced, and since then this house has not been visited by diphtheria.*

As another instance of the disease being due to water being contaminated with sewage and faecal matter, let me instance the frequent appearance of it at Murray's railway crossing house.† The water supply of this house is from an open ditch which runs parallel with the common county cart road, which road runs from the seaside up to the Helensburgh highway. Along this country road all the agricultural traffic required for the adjacent farms of Geilston and Murray's was carried on, including the passage and carting of manure, staling of draught horses, and the occasional indiscretions of the rural passers by. The source of the water itself, which came from a house garden about 300 yards off, was found to be perfectly pure, yet, in the houses of the railway employees there were constantly recurring attacks of diphtheria. The house itself was kept scrupulously clean, and was sanitarily, so far as the house could be considered, correct. It was also noticed that a neighbour's family in a little brick house further down the same country road, who partook of the same ditch water, was frequently plagued with an attack of diphtheria. Several analyses of this ditch water showed it to be frequently contaminated with nitrogenous impurities, most probably conveyed into it by the excremental matter dropped on the road by the quadrupeds which travelled over it, and also from the loads of manure which they frequently conveyed along it. Eventually the inmates of the house were prohibited from using the ditch water altogether. Some legal matters being arranged, they got the free use of the aforementioned garden spring, and since that time there has been no diphtheria in this locality, although the same ditch water unused still runs, and the same kind of traffic continues over the road. As another instance of the source being impure water, let me mention what I shall name "Castle Hill" epidemic. The house is situated over the ancient site of the castle where king Robert "the Bruce" died. It is on a rising knoll, with its water shed flowing from it freely in all directions. The house itself was to all appearance sanitarily correct, no drains communicating with it, no internal water-closets, yet despite this, year after year, especially during the autumnal season, it was frequently visited by epidemics of diphtheria. What is known as dry rot made its appearance in the house, and was supposed to induce a state of constitution which, if it did not

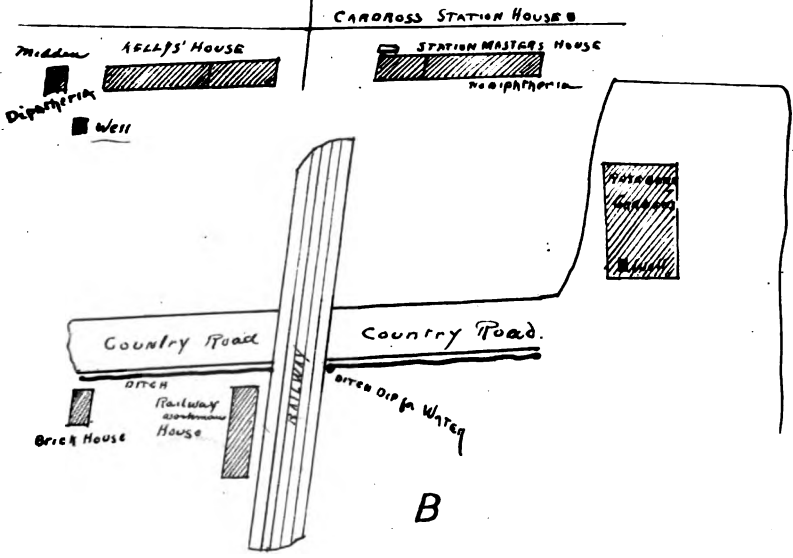
* See Ground Plan, section D.

† See Ground Plan, section B.

C



D



B

produce diphtheria, did at least, by vitiating the air of the dwelling, induce a state of depression that rendered the vitality of the inmates less able to resist the diphtheritic attacks. The house underwent a thorough overhaul to get rid of this, yet diphtheria did not cease to visit the inmates. The well was examined at various times; sometimes it was quite correct, and at other times it was suspicious, and that especially when a period of wet weather had followed a long drought. One was anxious to account for this, and it was even thought that there might be the relics of some old tumulus finding its way influenced by the rain into the well, but this could not be substantiated. However, it was noted specially that the well itself lay in a hollow, and that the farmer deposited his manure collected from the neighbouring town of Dumbarton on the hillside, at a distance of about 200 yards from the well, and that during wet weather the rain falling on this manure, percolating through it, ran on the surface of the soil and found its way into the well. The well was accordingly closed, and gravitation water from the neighbouring town introduced, since which time there has been an absence of sore throat among the family and complete absence of diphtheria.

As an illustration of the disease being caused by the air being impregnated with emanations from decomposing fæcal matter, let me cite the following case:—

Lea Bank house is situated within extensive lawns, its water supply is by gravitation from a source about one mile off. The same source also supplies two farm houses equidistant from the main fountain.

There had been from time to time laryngeal and pharyngeal illnesses in Lea Bank House, especially among the children, nurses, and parents, while the servants who slept in another portion of the house escaped, and moreover there were no throat troubles in the farms. These little throat disturbances caused the lady of the house much annoyance, especially as she complained of her children being frequently croupy, and was much disturbed herself by being constantly on the alert for throat mischief. It was, however, remarked that the illness was frequently laryngeal catarrh, and that the master of the house and lady herself did not altogether escape. The drains were smoke-tested and found intact. Yet the complaint did not cease, but eventually culminated in a well-marked outbreak of diphtheria which almost cost the life of the gentleman.

I had always my suspicion, despite the report of the inspector who smoke-tested the drains, that all was not well,

but I could not as yet lay my hands on the cause. The family removed from this house, and it was sublet to another who had not been long in it, before the same throat phenomena began to manifest themselves among the children first, then the nurse, and then the parents. The drains were again tested with the same negative results.

The position of the water-closet struck me as not being good, as it was situated in a mid room between the nursery and the parents' bedchamber, well ventilated, however, through the roof. I had it thoroughly examined, and found that the space between the seat and the pan admitted part of the contents of the slop basins which the servants emptied passing partly over it to the recess around the pan. Here fæcal matter had accumulated and decomposed, and was giving off a very offensive smell. A current of smoke from this point was applied, and it was clearly shown to be carried under the partitions of lath and plaster into the adjacent bedroom and nursery. The closet was altered and remodelled, preventing such further contamination, and from that time to this, there has been no appearance of the disease among the inmates in this mansion.

Sewage gas, especially that emanating from water-closet pipes, has often been, to my thinking, the cause of this complaint. In many cases I have been able to trace a distinct outbreak of this illness in families to the faulty gaseous leakage of the sewage pipe. Perhaps one of the most severe forms of diphtheria that I have seen of late years occurred about four years ago in a girl of 14 years of age. Her family, in good circumstances, took full advantage of both town and country life, and were anxious to have their children always, so to speak, in good form; but it was observed that the members of the family in the town were occasionally ill with catarrhal affections of the pharynx and larynx, which eventually culminated in one of them having a very prolonged and severe attack of diphtheria. It was, however, noticed that the disease, instead of beginning, as it frequently does, in the buccal mucous membrane of the pharynx, commenced on the naso-pharyngeal surface of the uvula and arch of fauces—a position on which I may have more to say by and bye, as indicating a method of aerial infection. I had my attention directed to the sanitary aspect of the whole surroundings of the patient. The smoke-test applied to the water-closet pipes showed leakage in the main shaft, and the smoke found its way into the bedchamber of the young lady. Since then the pipes have been made sanitarily correct,

and there has been no recurrence of diphtheria, or any form of membranous sore throat, among the inmates of this dwelling.

An analysis of the sanitary state of the localities where this disease occurred invariably proved the presence of defective sanitation, either in the form of defective drainage, water-closet, middens, or general insanitary surroundings.

One of the most common causes of diphtheria in town is defective plumber work, and that not only in water-closets and their connections, but also in the fittings incidental to the kitchen sink. In very many of the cases I have met with in towns, I have been able to show the connection between the onset of the illness and the escape of sewage gas from the lead bend or cesspool of the ordinary sink. This I have done often by the application of the smoke test, when one could see the fumes reeking from the defective pipes and joints which were eaten away by oxidation or rats, and allowed the sewage gas to find its way direct into the house. In Levenford and Levensgrove Terrace here, in the house of W. B. and in that of M'N., there were distinct gaseous exhalations from the pipe at the time of the outbreak, and in both houses the emanations could not find their way either to the food or water supply of the inmates. In these cases I found that the diseases attacked primarily the respiratory tract of the pharynx. In another family called M. in Bridge Street, where the cause was similar, the disease began at the same local site; and in one of these cases the membrane even attacked the excoriations around the anus of a child. In another family, that of B. in High Street, Dumbarton, where there was an old, foul, badly kept cesspool, into which the "jaw-box" communicated, every family that entered this house suffered more or less from diphtheria, and in all of them the respiratory tract of the pharynx was first affected, the membrane spreading thence to the tonsils, &c., showing to my thinking the aërial mode of infection.

Another manner in which the disease is sometimes produced is by mixing the mortar with which new tenements are built with sewage water. This form of communicating the disease was brought prominently before my notice during the autumn of 1878, when the suburb of Dumbarton, known as the New Town, was being completed, especially the lower part of it—a division of which is called Leven Street.

This part of the town is built on what at one time was a morass, the tidal and flood waters of the Leven—a river which at ebb tide is fresh water—flowing occasionally over it. On the surface was grass; immediately below this, for 2 feet,

was sand, then clay; so that with the tidal returns there was the constant changing of subsurface currents. These houses had in some instances, to keep them from settling down too much, been founded on wooden logs. At the time that these last tenements were erected, the sewage drains from the houses previously built and occupied further up the street had been, and were in constant use. At this time also there was a dearth of water in the town; the Water Commissioners, being in a state of transition, finding their water-works too small for the demands made upon them, were negotiating for further addition to their storage and collecting resources, and could not supply builders, except under very exceptional circumstances, with water. Hence dug pits made to catch the subsoil tidal flow were quite common, and when these failed, which very often happened between the tidal fluxes, the builders had recourse to dipping their buckets into the common sewer manholes, taking the sewage water and mixing their lime with it. In such houses, especially those whose plaster was prepared in this way, diphtheria was very common.

There is another way in which the disease can be communicated, and that is by direct inoculation. The cases now to be related confirm what I have long since contested as to the seat of the complaint being primarily local, and I was therefore singularly fortunate, through an unintentional irregularity of practice, in seeing my own views confirmed. I had been attending a case of diphtheria during the summer of 1884, and more to please the patient than from a belief in its efficacy, I rubbed the throat of the patient with my pencil of lunar caustic, and without being careful as to wiping and disinfecting the caustic pencil and case, I again applied it to the throat of a country farmer whom I was called casually to see in my passing his residence. He was at this time complaining of a slightly swollen throat, and was often ill with rheumatic pains in his muscles; indeed, the whole family, brothers and sister, were essentially rheumatic, and his throat had the characteristic that one frequently sees among countrymen when they are going to have a mild form of tonsillitis and rheumatic myalgia. I, more as *placebo*, to make him feel that really one was doing something for him, slightly rubbed the one side of his throat with the same caustic pencil, prescribed for him medicines to meet the more rational indications of his illness, and left him. Two days after, I was sent for specially to see him, and found in the throat, over the site where I on my previous visit cauterised, a well-marked diphtheritic exudation, from which site the

membrane gradually spread till it covered both tonsils, uvula, and part of the fauces, and this was followed by all the symptoms of a very severe attack of diphtheria. He, after a few weeks' illness and careful watching, eventually recovered.

In the evening of the same day on which I had first seen and cauterised the aforementioned patient, I was called to see Miss C., a young lady of 17 years, who had also a sore throat. She had frequently been ill with tonsillitis, and was of a relaxed habit of body and strumous tendency. Her throat had on many previous occasions been touched with caustic, and such touching had always been of benefit to it. I therefore naturally thought that a re-application of former remedies would be beneficial, and as a matter of routine applied the same lunar caustic gently to it. On the following day I saw her, and found the throat, at the point touched with the caustic, differing in appearance from what one usually finds on the following day after the topical medication of such appliances. It was, in fact, along the line of application, passing into the glistening exudative condition, that a practised eye full well knows heralds the onset of diphtheritic exudation, which membrane soon formed at the point cauterised, extended over the entire throat, and was followed by considerable constitutional disturbance characterising well-marked diphtheria.

These two cases convey to one the fact that lunar caustic has not the power of destroying the germs, or bacilli, or whatever they be that produce diphtheria, and moreover, they also point out that the abraded mucous membrane caused by the cauterising readily admits the diphtheritic contagion to be inoculated at the site of application, and to be thus conveyed to the entire system.

A number of experiments performed by me on kittens during 1877, and quoted *in extenso* in my Thesis for the degree of M.D. in the Glasgow University, showed that if the pharyngeal mucous membrane be abraded and then fresh diphtheritic membrane rubbed on it, the disease can be communicated to the feline race.

From the foregoing, it will be seen that I consider the disease to be essentially primarily local, and that constitutional symptoms or sequelæ follow as a consequence of the local symptoms. It is my opinion, further, that membranous croup is just a laryngeal manifestation of pharyngeal diphtheria, and that the mode of infection determines, along with the patients' idiosyncrasy, which form the disease will first assume.

Mode of Onset.—In the case of the Geilston burn epidemic, where the water supply was the cause of the illness, the disease was conveyed to the patients by the ingesta, and in these forms of it one found the local lesion always beginning in the anterior and faucial aspect of the arch of the fauces and tonsils, and when laryngeal complications manifested themselves they were due to the extension of the disease into the air passages, whereas in the Lea Bank House attacks the cause of the illness being aërial emanations from decomposing excreta of the closet, the pharyngeal aspect of the uvula, fauces, and epiglottis became primarily affected, and any extension forward in the buccal cavity was secondary to the laryngeal. Such an extension of the exudation of contagion one frequently meets with in practice, especially when children are ill among the lower classes. Here the air of the apartments is too often close and stuffy, and the atmosphere respired by the inmates becomes charged with the contagion which passes during the acts of respiration along the air passages, and produces in children diphtheritic croup primarily, while in the older members of the same household the disease is almost always pharyngeal. The hirsute appendages in the adult nostrils, and, over and above that, those of the upper lip in the male, act as a barrier to the contagion entering along the respiratory tract, and it is conveyed to them in some manner by food or otherwise along the buccal cavity.

Bearing in mind these points, one naturally asks, *how does the constitution become affected?* To this I unhesitatingly answer, by the lymphatics and blood-vessels, and also by the inspired air.

Very early in the course of an attack of diphtheria there is a glistening and hyperæmic condition of the surface where the membrane will soon appear. There is a dilatation of the capillaries and venules, and the lymphatic spaces become enlarged, and such a condition goes on increasing during the formation and maturation of the false membrane. The parotid, submaxillary and some of the antero-lateral cervical glands become enlarged, sometimes enormously, but always some, no matter how mild the attack. They frequently become very painful, but never suppurate. The enlargement commences first in the glands nearest to the local lesion, and then extends to the others, travelling in the course of the lymphatics to the thoracic duct. The enlargement is due to the poison generated at the local lesion becoming absorbed, setting up a special form of adenitis as it traverses the glands on its way

to the venous circulation at the junction of the ducts with the systemic veins. The venules also beneath the diphtheria surface absorb the poison, and frequently little thrombi are formed in their lumen. The inspired air becomes a most prolific cause of constitutional infection, for here, 18 to 30 or more times per minute, according to the local site of the disease, the air, passing over tissues in many phases of degeneration and charged with gases, the result of local necrosis and putridity, passes into the lungs and is continually at work in poisoning the entire organisation.

A debatable question with many practitioners of medicine is *the identity or non-identity of scarlatinal diphtheria with ordinary diphtheria*. My convictions are that they are one and the same. I see no reason why the two diseases cannot co-exist in the same patient. We occasionally find other complaints do this. Murchison, in his great work on fevers, relates cases of typhoid fever and scarlet fever co-existing in the same patient. Most practitioners of advanced experience have seen erysipelas complicate the exanthemata, and run its course, yet we know these diseases are due to independent organisms. Moreover, in two epidemics of scarlet fever that occurred in Dumbarton in 1875 and 1887, in which many attacks were of the malignant variety, I occasionally met with the two diseases in the one family; and I have seen one member of the family ill with diphtheria in the same house, attended by the same attendants, and others ill with scarlet fever, with diphtheritic exudation on the throat of the same colour, quality, and consistence as that of the other member of the household who had diphtheria alone.

Some, again, maintain that the tendency to suppuration of the glands is a broad distinction. To my thinking this is not a distinction, but rather an accident in the course of the illness, for how often do we meet in strumous subjects who are ill with scarlatina, where no diphtheritic exudation is present, the glands going on to suppuration; and, moreover, one meets occasionally during convalescence from diphtheria, and also after scarlet fever with diphtheritic exudation in the pharynx, sequelæ in the form of paralysis of the palatopharyngeal muscles—swallowed fluids being returned by the nostrils.

Age.—While the disease may attack all ages, one finds that it has a predilection for the periods of childhood, infancy, juvenility, and manhood, and this in a direct ratio as I have

named them. This at least has been my experience in meeting this illness in patients, and also the knowledge gleaned from inquiry among other medical practitioners.

Fatality.—An analysis of the Dumbarton registration statistics for the nine years 1882 to 1892 shows that the younger the person attacked the more fatal the illness; and, moreover, the female is more liable to sink under the diphtheritic malady than the male. During the above nine years mentioned I find that, among a population varying from 14,000 to 16,000, there were recorded in all 41 deaths. Of that number, 13 were males and 28 females, their ages varying from a few months to 14 years. The cause of death among the children was mostly due to the disease extending down the larynx into the bronchi and lungs, and this with a frequency in the direct ratio of their youth.*

Fatal Complications.—When this disease proves fatal, it does so in various ways. In the young, especially children, mostly on account of laryngeal complication—by asphyxia; in those older, mostly by asthenia and septic poisoning, and in a few by paralysis, the implication of the pneumogastric destroying the respiratory and cardiac functions. In other cases I have found, when all seemed going on to recovery, a cardiac thrombus suddenly terminate life.

Treatment.—Now, if these be the ways of dying, what course of treatment should be followed? Obviously to avert these manifestations, and to guide the patient over them. This can best be done, I believe, by careful attention to the following rules:—

(1) Find out the cause of contagion, and prevent it gaining further access to the patient.

(2) Keep the patient in the purest of atmospheres, not necessarily in the house. He may, if the weather is mild, and the laryngeal mischief not bad, or not present in his case, be out of doors a little in summer. Miss M'K., aged 60, of Ardoch, was allowed this liberty, and she recovered quickly.

(3) Give plenty of liquid nourishment in the shape of beef-tea, chicken-tea, soup, milk, egg-flip, &c.

(4) Give stimulants freely from the very beginning of the illness, but keep them short of producing drunkenness in the patient.

(5) Keep the dishes, &c., of the patient, entirely for himself.

* See *ante*.

(6) Disinfect the throat of the patient hourly, and only miss a time if the patient is exhausted and sleeping. Apply the medication on and beyond the diphtheritic membrane. Each time, previously to applying the medication, remove all loose and decomposing substances from the throat.

(7) Let the application be of such a nature as will soothe, temporarily anæsthetise, and disinfect the diseased surface, and also astringe the vessels.

(8) If the tonsils are so enlarged that the patient cannot swallow food, medicine, or the throat be topically disinfected, excise the tonsils, and brush the raw surface with pure carbolic acid. In one case, that of Miss M.K., aged 5 years, I did this successfully.

(9) As there is distinct evidence of the poison finding its way through the throat to the lymphatic glands, use medicines that act freely upon these, and also upon their fibrous stroma. Iodide of potassium will do this well. It exerts a specific action on these glands. It must be given in large doses, five to ten grains to a child, ten to twenty grains to an adult, and pushed hourly till it brings about an alkaline and iodised effect upon the urine, after which it need not be given so often.

(10) Administer along with iodide of potassium a medicine which has the power of arresting putrefaction and preventing decomposition, and which also possesses antiperiodic, hæmodynamic, antifebrile, tonic, and blood forming properties.

(11) Such a medicine is the alcoholic tincture or concentrated infusion of red cinchona bark.

(12) Iodide of potassium and this red bark, given together, have a marvellous effect in controlling the course of, and diminishing the mortality from, diphtheria.

(13) Chalybeates, nerve tonics, and electricity along the spine meet the subsequent paralysis best.

(14) If death be threatened from laryngeal asphyxia, not due to paralysis, perform tracheotomy.

(15) After years of experience of many topical applications, I have found the following best:—

R.—Acidi carbolici,	.	.	.	.	.	ʒi.
Pulv. aluminis,	.	.	.	.	.	ʒii.
Glycerine,	.	.	.	.	.	ʒiii.—Solve.

Sig.—To be painted on the throat hourly.

If these indications are carefully followed, years of their application have convinced me that a very low mortality from diphtheria will result.

LOCALITIES IN DUMBARTON WHERE DIPHTHERIA OCCURRED
AND PROVED FATAL.

1891.

No.	9.	F.	1	William Street, . . .	1 year.
„	52.	F.	1	Strathleven Place, . . .	8 years.
„	53.	F.	1	Quay Street, . . .	3 „
„	60.	F.	1	Do., . . .	3 „
<hr/>					
				4	

1890.

No.	1.	F.	1	Burnside Place, . . .	1 year.
„	283.	F.	1	Strowan's Well, . . .	4 years.
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				2	

1889.

No.	3.	F.	1	Strathleven Place, . . .	3 years.
„	6.	F.	1	College Park Street, . . .	3 „
„	28.	F.	1	Church Street, . . .	4 „
„	67.	F.	1	Overburn Street, . . .	3½ „
„	223.	F.	1	West Bridge End Street, . . .	1 year.
„	244.	M.	1	Do., . . .	6 months.
„	248.	M.	1	Poindfauld Terrace, . . .	3 years.
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				7	

1888.

No.	38.	F.	1	Clyde Street, . . .	4 years.
„	39.	F.	1	West Bridge End Street, . . .	6 „
„	85.	F.	1	High Street, . . .	15 months.
„	158.	M.	1	Risk Street, . . .	1 year.
„	166.	F.	1	College Street, . . .	3½ years.
„	206.	F.	1	George Street, . . .	14 months.
<hr/>					
				6	

1887.

No.	140.	F.	1	High Street, . . .	3 years.
„	205.	F.	1	Do., . . .	2 „
„	259.	F.	1	Do., . . .	2½ „
„	273.	M.	1	Do., . . .	1 year.
„	379.	F.	1	Risk Street, . . .	4 years.
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				5	

1886.

No.	157.	M.	1	High Street, . . .	19 months.
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1885.

No.	87.	F.	1	High Street, . . .	3½ years.
„	239.	M.	1	Clyde Street, . . .	11½ „
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				2	

LOCALITIES IN DUMBARTON WHERE DIPHTHERIA OCCURRED
AND PROVED FATAL (*continued*).

1884.

No. 154.	M.	1	Levenhaugh Place, .	1 year.
„ 248.	M.	1	West Bridge End Street,	21 months.
„ 235.	F.	1	Poindfauld Terrace, .	10 „
„ 292.	M.	1	Levenford Place, .	2 years.
<hr/>				
4				

1883.

No. 16.	F.	1	Knozland, . . .	5 years.
„ 62.	F.	1	William Street, . .	2½ „
„ 178.	M.	1	Clyde Street, . . .	9 months.
„ 203.	M.	1	High Street, . . .	10 „
„ 240.	M.	1	Allen Place, . . .	14 years.
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5				

1882.

No. 57.	F.	1	High Street, . . .	2 years.
„ 206.	F.	1	Mission Hall Place, .	2½ „
„ 219.	F.	1	Church Place, . . .	19 months.
„ 246.	F.	1	Rowand Craig Place, .	13 „
„ 270.	M.	1	High Street, . . .	10 „
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5				

NUMBER OF DEATHS FROM DIPHTHERIA REGISTERED IN
DUMBARTON FROM 1882-1891.

Year.	Males.	Females.	Total.
1882, . . .	1	4	5
1883, . . .	3	2	5
1884, . . .	3	1	4
1885, . . .	1	1	2
1886, . . .	1	...	1
1887, . . .	1	4	5
1888, . . .	1	5	6
1889, . . .	2	5	7
1890 (both Landward),	...	2	2
1891, . . .	...	4	4
	13	28	41

It is to be regretted that the Notification of Disease Act did not come earlier into force. Had it done so, these short tables might have been much more valuable, as we would have had a more complete and extended knowledge of these cases of a mild form which happened in the same district, but which eventually recovered. Such statistics, however, may on another occasion be turned to good account.

TWO CASES OF MYXŒDEMA TREATED BY
THYROID FEEDING.

BY JAMES ADAM, M.B., C.M., HAMILTON.

CASE I.—The following notes on the case of Mrs. B., aged 38, were made on 3rd February, 1893 :—

Patient used to be a very active woman till, seven and a half years ago, while a good deal worried about domestic affairs, she got a great shock owing to the death of a child from burning during her absence from the house. She has "never been the same woman since." At that time she was nursing a baby eight months old. She suckled it for other nine months, then menstruated three or four times, became pregnant, and gave birth to her last child six years ago. It does not seem to have been strong, and died "of debility" when nine weeks old. She had suckled all her previous children, but had no milk for this one. Her menses, which had been regular up till this pregnancy, never returned. She did not recover strength as usual after the puerperium, and her friends noticed swelling of limbs and face. Within the next eighteen months she had begun to feel, what has been a constant complaint throughout—viz., "buzzing" in the head, and a "beating" in neck and chest. This gets worse when she gets cold, as she often is, finding it difficult to keep herself warm. Her hair has been coming out ever since her last confinement. The other symptoms characteristic of myxœdema also showed themselves, the feeling of lassitude being specially burdensome. At present she displays harsh dry skin, non-pitting œdema, pallor of mucous membrane and of face, except cheeks, which are flushed, œdematous look about the eyes, loss of expression in face, hair dry and scanty, hands spade-shaped. Voice is harsh, speech slowed; there is the characteristic maundering in talk. Teeth are becoming loose, and one has recently dropped out. The thyroid cannot be felt. Pulse 72, small, feeble. The heart seems normal, except that the first sound is inaudible anywhere. Knee-jerks can scarcely be elicited.

11th April.—Treatment was begun on 6th February with half a lobe of calf's thyroid, and continued with at first a half and later a quarter lobe of sheep's thyroid. Profuse sweating began within a few hours of the first dose, and she still sweats freely. At first there was a considerable amount of mucus

and urates, and distinct albumen in urine. There was also malaise, loss of appetite, pain in back and legs, palpitation. It was with difficulty patient could be persuaded to continue treatment. These symptoms, however passed off. Temperature, which before treatment had been about 96.5° , became normal within four days, and has since continued so. The first heart-sound was quite distinct within a fortnight, and by this time the face was thinner and more expressive, speech and movement quicker. Within six weeks the difference in patient's appearance was so marked that an acquaintance, on seeing her for the first time since treatment was begun, had difficulty in recognising her. The myxœdema, the feeling of cold, the slowness of thought, speech, and movement have quite gone; she can now knit easily, though not able for heavy work.

At present date patient is very active and buoyant. Menstruation has not returned; there is profuse growth of hair. The first heart-sound is quite distinct, though feebler everywhere than second. Knee-jerks are distinct.

Treatment is still continued, with the addition of iron tonic.

CASE II.—18th April.—About nine years ago Mrs. L., aged 50, began to get very stout, and to be less able for work. She had previously been a hard-working woman, and is inclined to date her illness from that time. Certainly the symptoms of myxœdema had become prominent about five years ago, when she had a great deal of worry. There was swelling of ankles, great backache, fatigue on exertion, pallor, change of voice, and, later, dropping out of sound teeth and loss of hair.

The case, at first sight, might have easily been mistaken for one of large white kidney. There were waxy pallor of face and marked serous œdema of eyelids and of lower limbs, pitting on pressure; but patient always passed plenty of albumen-free urine. There was typical myxœdema everywhere, except as stated. Skin dry, seldom sweats. Mucous membranes and skin pale, except for slight flush on cheeks. Hands spade-shaped; slow speech, husky voice, slow movements, but not marked slowness of thought; supraclavicular swelling; no trace of thyroid to be felt, though trachea is easily palpable. Temperature 97.4 , pulse 90. Menstruation ceased for three years after birth of youngest child, twelve years ago; it then returned, and has continued regular every month for the last nine years, lasting at first for a week, but latterly for three days.

20th July.—Treatment was begun 18th April with half a lobe of sheep's thyroid thrice weekly, but this produced headache, palpitation, and upset the stomach, and the dose was reduced to a quarter lobe. The œdema of eyelids disappeared within the first week of treatment; within a month the improvement in all respects was manifest to every one; but as œdema of legs continued, massage was begun, and cured it. On being shown her photograph as at the beginning of treatment, patient was much offended, and declared she never looked like that. She can now enjoy a walk, though still unable for heavy work. The great backache is gone. She could hardly climb a short stair before treatment, but now easily does so.

Before treatment the highest daily quantity of urine noted was 40 oz., the average about 25; for the first ten days thereafter nothing less than 40 oz. was noted; 60 and 75 oz. were occasionally passed. I have only one note of daily amount of urea before treatment was begun—viz., 190 grains; during the next ten days 250, 450, 315 grains daily were noted. In the case of Mrs. B. there was an increase of 1 to 2 grains per oz., but the quantity of urine, so far as I recollect, remained much the same during as before treatment.

The method adopted was to mince fresh thyroid, and administer it in a sandwich of bread and butter flavoured with pepper. The eighth of an ordinary sheep's thyroid thrice weekly seems enough, at least to begin with; for great difficulty was found in getting the patients to continue the treatment during the first fortnight, owing to unpleasant symptoms, probably due to too large a dose, though perhaps partly owing to rapid elimination of accumulated waste products. It is evident that the treatment must be kept up, as, in the second case, its unavoidable intermission for ten days was followed by slight return of œdema about the eyes and of lassitude. Photographing of the patient is not unimportant, as it is impossible for patient, friends, or doctor sufficiently to realise the extent of the change in the patient's appearance without placing side by side photographs of the patient taken before and after treatment.

A CASE OF PYÆMIA WITHOUT EXTERNAL WOUND
(MALIGNANT PERIOSTITIS.)

BY JOHN LINDSAY STEVEN, M.D.

WILKS AND MOXON discussing, in their classical work,* the term "periosteal abscess or acute necrosis," wrote as follows:—

"When the inflammation is extensive and severe, pus forms under the periosteum, and raises that membrane off the bone to form an abscess around the bone. Thus arises a terrible and very dangerous disease, which is not very uncommon; it nearly always occurs in children or young persons, and is usually ascribed to some injury which is generally not severe. The danger that attends it arises from its disposition to set up a very grave form of pyæmia, during which abscesses occur in the heart and kidneys much more often than in pyæmia from any other cause. The disease is not usually limited to the periosteum; indeed, some French pathologists have said that necrosis of the bone does not occur unless the medullary membrane is implicated. Certainly section of the bone usually reveals an inflamed state within; lymph and pus are found within the medullary cavity and cancelli; yet in many cases this is not so, but the bone is dead, while the interior exhibits no sign of former inflammation. Sometimes the disease kills very rapidly, as, for instance, in six or seven days; indeed, before pus has time to form in large quantity. The periosteum is then found detached, and the bone separated from it by a dirty, brownish, turbid fluid, consisting of pus in which some altered blood is mixed. If the patient live longer—say for two or three weeks—a large quantity of pus is found around the bone, the bone itself being quite naked and white, or, more strictly, of the colour of milk of sulphur. The disease generally stops at the epiphyses, but not always; it very rarely, however, reaches the joints. It nearly always attacks one of the long bones, more generally of the lower extremity, but it has been known to affect the pelvic bones, pterygoid process, &c. We have seen it limited to the middle phalanx of one finger in a case rapidly fatal with the characteristic pyæmia."

In this paper I propose to put on record the notes of the *post-mortem* examination of a case which in all respects closely resembles the picture so graphically depicted in the quotation given above. With the clinical details I have no

* *Lectures on Pathological Anatomy* (second edition, London, 1875), page 18.

concern, but it is necessary merely to mention the following circumstances:—

The patient was a schoolboy, aged 9 years, who had been in the Glasgow Royal Infirmary for one week on account of a painful shoulder, which began to trouble him after a blow inflicted a short time before. He died in a state of hyperpyrexia, and no surgical interference had taken place.

Post-mortem Report.—The body is fairly well nourished. The pupils are widely dilated. There is slight icterus of the face and lower extremities. There is evidence of rickets; and there is a very considerable swelling over the left shoulder joint and upper arm, with slight reddening of the skin.

Both pleural cavities contain a considerable quantity of opaque serum, and there is most pronounced acute pericarditis of quite recent date. The whole heart is embedded in a thick mantle of recent fibrin; but the parietal pericardium is thickened, injected, and smooth, no firm adhesions having yet taken place. Externally, adhesions have occurred between the pericardium and the surfaces of the lungs, resulting in moderate fibrinous pleurisy, particularly on the left side.

The lungs are healthy in appearance, and, in particular, it is noted that there is no abscess formation in any part.

On opening the heart, an abscess the size of a hazel nut is found in the wall of the left ventricle on its anterior aspect, and immediately beneath the level of the aortic curtains. This abscess is filled with a caseous sloughy-looking pus, and at one point seems perhaps to have ruptured into the pericardium, and may have been the means of setting up the widespread pericarditis.

In the wall of the left side of the thorax, in the line of the angle of the scapula, and between the seventh and eighth ribs, there is an abscess.

On removing the kidneys, both are found to be the seat of multiple miliary abscesses—the largest the size of a large millet seed, and most of them surrounded by a bright red zone of injection. No abscesses can be detected in the liver or spleen, and the mucous membrane of the stomach is healthy. The urinary bladder is distended with clear urine, but otherwise presents healthy appearances. The brain also presents quite healthy characters.

The left upper arm and shoulder are much swollen, and on incising the parts a large quantity of pus (8 to 10 oz.) escapes. The periosteum is found to be stripped from the upper half of the humerus, leaving it quite bare and pearly-white, and the muscles around are infiltrated with pus.

It is unnecessary to comment at any length upon this very interesting case. Unfortunately no bacteriological observations could be undertaken, but even without these there can be no doubt as to the essential nature of the disease. In almost every particular the phenomena observed seem to confirm the minute accuracy of the description of the affection which I have quoted from Wilks and Moxon. According to these authors, the disease "is not very uncommon;" but it is right to mention that in our experience at the Royal Infirmary during the last four years, and in the course of over 800 *post-mortem* examinations, this was the first case of the kind that I can recollect to have seen.

Since the notes of this case were sent to the printer, I have had another almost precisely similar, making in all two cases in the course of about 840 autopsies.

In 1882, I remember having seen Dr. Joseph Coats perform a *post-mortem* examination on a case of the kind from the wards of Dr. H. C. Cameron, and the notes of this case were published in the *Glasgow Medical Journal* for April, 1883, at page 305.

These three cases constitute my personal experience of the affection, and I hope in a future number of the *Journal* to record the *post-mortem* notes of the third. The true nature of the disease has long been recognised, and an interesting note on the pathology of the condition is contained in the *Glasgow Medical Journal* for July, 1876, at page 403.

CURRENT TOPICS.

VACANCIES IN THE TEACHING STAFF OF THE GLASGOW MEDICAL SCHOOL.—The following vacancies have been announced:—

(1) The Chair of Midwifery, vacant by the resignation of Professor William Leishman owing to continued ill health.

(2) The Chair of Chemistry in St. Mungo's College, owing to the death of Professor James Milne.

(3) The Chair of Materia Medica in Anderson's College, on account of the resignation of Professor Alex. Napier.

(4) The Chair of Physics in Anderson's College, vacant by the resignation of Professor Freeland Fergus.

THE SMALL-POX IN GLASGOW.—Our sanitary officials are to be congratulated upon the very successful way in which they have dealt with the small-pox epidemic in the city during the past year. Glasgow has escaped with a total of 444 cases and 32 deaths, and there can be no doubt that this satisfactory result is entirely due to the untiring efforts of our sanitary office. The first case—the sailor from Bilbao—sickened on the 27th July, 1892, and after wandering about for a while, infecting different places, he was admitted to Belvidere on the 6th August, 1892. The last case sickened 21st June, 1893, since which there have been no fresh cases within the municipal boundaries of the city of Glasgow. The epidemic was thus with us almost exactly a year, and one good effect of it was that it led to the revaccination of a large section of the community. The sanitary authorities are making an effort to find out how many individuals have been privately revaccinated, and the result will be awaited with interest.

THE ANNUAL REPORT OF THE GLASGOW SANITARY DEPARTMENT.—Mr. Peter Fyfe's annual report for the year ending 31st December, 1892, is just to hand, and, as usual, it is a most interesting document. We may mention one or two of the salient features, but the report is well worth perusal in detail. The death-rate of the extended city for 1892 was 22·8 per 1,000 per annum; in the old city it was 23·6. The addition of the suburbs has accordingly subtracted ·8 per 1,000 per annum from the death-rate. The figures showing the distribution of nuisances and infectious diseases are of great interest, and we learn that in this regard Maryhill is almost as bad as the famous Bridgegate and Wynds. In all, 2,142 individuals, mostly children, have been vaccinated or revaccinated during the year by the sanitary officials. A new inspector for sailors' and emigrants' boarding-houses has been appointed. Eighty-six separate houses were closed during the year as unfit for human habitation. An interesting record of the inspection of cowfeeders' premises is given; and our readers will find in the report some valuable and surprising information as to the chemical analysis of samples of extract of meat and of custard powders.

GENERAL NURSING INSTITUTION—VISITING NURSES FOR PAYING PATIENTS.—We think the following announcement is one that should be made known to our readers, and we regard the proposal as a step in the right direction:—

“The Lady Superintendent of the General Nursing Institu-

tion desires to call attention to the fact that she has appointed a 'visiting nurse' for paying patients in Glasgow, upon a somewhat similar system to that of District Nurses to the Sick Poor. The work of the latter is too well known to require any comment; and the Lady Superintendent believes that, by appointing a 'visiting nurse' for those who can afford to pay, she will meet a want which has long been felt.

"The special function of this nurse will be to attend upon paying patients in such cases of illness as may require occasional visits where the patient is not ill enough to need the entire services of a resident nurse, but where a certain amount of attention, such as is often required in slight cases of illness or accident, might be given. This nurse will visit her patients once, twice, or thrice daily as desired.

"Application for the nurse's services to be made to Miss Baker, the Lady Superintendent, at the Home, 2 Queen's Crescent, W.

"Terms:—Single visit, 2s. 6d.; daily visit (per week), 10s. 6d.; two daily visits (per week), £1, 1s.; per night, 5s.; assistance at operation, 10s. 6d."

THE BRITISH MEDICAL ASSOCIATION AT NEWCASTLE.—Nearly seven hundred members of the Association assembled in the metropolis of the North of England to attend the annual meeting of the Association, and altogether the gathering may be regarded as having passed off with great credit and success. Visitors to Newcastle could not fail to be struck with the completeness and efficiency of the medical school, for which the large industrial and manufacturing city on the banks of the Tyne affords a field for clinical study and research which is not often surpassed. The College of Science, in which a number of the sections held their meetings, is also very efficiently equipped, and the Lecture Room set apart for the section of Pathology was provided with an excellent electric lantern, the use of which was kindly granted to gentlemen making communications, and proved of the very greatest service. Important discussions were held on many of the subjects which are at present attracting much of the attention of the profession—such as the treatment of mastoid disease and cerebral tumours, puerperal septicæmia, the etiology and treatment of myxædema, the radical cure of hernia, the prevention of cholera, &c. The addresses on medicine, surgery, and gynæcology were not in our opinion marked by any features of special brilliance or novelty, being rather exhaustive reviews of recent progress.

The Corporation and the Medical Profession of Newcastle entertained their guests with a generous hospitality which was truly English, and all the members we encountered said that they had enjoyed themselves thoroughly. A very full report of all the proceedings, in book form, has been issued from the offices of the *Newcastle Daily Chronicle*.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS, ROME.—We have received the following official announcement of the postponement of the Congress:—

“In consequence of the sanitary condition of several of the European States, which prevents their medical men leaving home, and, following the advice of many of the most prominent scientists, both Italian and foreign, the Executive Committee of the above Congress has decided, by a large majority, to postpone the Meeting till April, 1894. The exact date of the Inauguration will soon be fixed.”

In connection with the postponement of the Congress, we also publish the following communication from the Privy Council office:—

“The Clerk of the Council presents his compliments to the editors of the *Glasgow Medical Journal*, and with reference to the programme sent to them on the 28th ulto., has the honour to state that the International Exhibition of Medicine and Hygiene, proposed to be held at Rome in September and October next, has been postponed to April, 1894.

“COUNCIL OFFICE, 21st August, 1893.”

THE OPIUM TRAFFIC.—At a meeting of the Edinburgh Anti-Opium Committee held on 14th July—Dr. A. H. F. Barbour in the chair—the following resolution was unanimously adopted:—

“This Committee has heard with satisfaction the reports of the deputation sent to London to represent the Edinburgh and Glasgow Anti-Opium Committees, and expresses its thanks to the Scotch Members who supported by their votes the motion made by Mr. Alfred Webb and Sir Joseph Pease, re-affirming the declaration that the system by which the Indian opium revenue is raised is morally indefensible; and while accepting the appointment of a Royal Commission as a distinct step in advance, regrets that the proposed Commission is, in various respects, limited in its powers, and in particular it has not been instructed to inquire into the question as affecting China.”

CREMATION AND EARTH-TO-EARTH BURIAL.—"The Rev. Dr. Johnstone, Moderator of the Presbyterian Church in England, contributed a paper on 'Cremation and Earth-to-Earth Burial' at the July meeting of the Church of England Burial and Funeral Reform Association, held at the Church House, Westminster; in the course of which he said that ministers of religion had special opportunities of inculcating the duty of sanitary burying. The two chief methods of disposing of the body had been from the beginning, burying and burning. The former had been the mode adopted by the Jews and all the Semitic peoples; the latter had been the mode chiefly practised by the Greeks, Romans, and many Asiatic peoples. The mode adopted by Christians had been that of burying. This custom was now called in question on sanitary grounds. In this there was much force. Dr. Creighton, in his 'History of Epidemics in Great Britain,' had with much success, traced such epidemics as the black death, the great plague of London, and the various outbreaks of influenza to the poison of dead bodies, unburied or ill-buried. Whether Dr. Creighton was right or not, there was no doubt that many graveyards were both a national danger and a national disgrace. There was no necessity that they should be either. The two great dangers that gathered around cemeteries were the poisoning of the air and the pollution of the water. But such dangers, which came mostly from the practice of pit burying and vault burying, were with proper precautions largely preventible. Both of these methods ought to be abolished, and a rational sanitary mode substituted for them. From want of this sanitary mode there had arisen a cry for cremation, which promised to get rid, at a stroke, of all the evils complained of. Cremation would certainly get rid of all the evils arising from the slow decay of vast masses of animal matter; but whether it might not bring other evils in their stead remained to be seen. One thing was certain, cremation would not be largely adopted in this country for many years to come. This mode of disposal of the dead would encounter formidable opposition. Not to speak of sentimental reasons which in time would be overcome, of ignorant fears for the safety of the resurrection body which might be shown to be groundless, of real fears of opening the doors to murder for which safe-guards might be found, there were other reasons which stood in the way of cremation. It was a fact, account for it as we might, that Christianity at its coming abolished the burning of the body and substituted the burying thereof; and so long as St. Paul's great chapter on

the resurrection, in which he speaks of burying the body, not of burning it, had weight with men, the mass of Christian people would not readily return to that which Christianity abolished. But if men were not, on sanitary grounds, to be led to adopt cremation, we were all the more bound to adopt methods of burying that would be as little as possible hurtful to the living. Funeral reformers must be up and doing. This was an age of short and easy methods, which cure one evil only to create another. Cremation was one of those short cuts to the promised land so much in vogue in our time, that only led deeper into the wilderness. Funeral reform meant pains and labour. But it was worth both. Let the burying place be in very deed what their Saxon forefathers called it, God's acre, free, as becometh God's acre to be, from all unnecessary defilement. Burial without its attendant evils, would then be to us what it was to the early Christians, the mode of disposing of the body, which most fitly expresses its sacredness."

We confess to having considerable sympathy with the views expressed in Dr. Johnstone's paper, and there may be a good deal in his remark as to cremation being a short cut to the promised land. At the same time, in crowded centres of population, cremation as a mode of disposal of the dead seems to have certain advantages.

THE LONDON POST-GRADUATE COURSE.—This course was founded in January, 1890, in order to increase the opportunities for clinical instruction in London for qualified members of the profession, and also with a view to extend the usefulness for teaching purposes of those hospitals to which there is no medical school attached.

During the winter term (October, November, and December, 1893) instruction will be given by members of the medical staffs of the following hospitals:—The Hospital for Consumption and Diseases of the Chest, Brompton; The Hospital for Sick Children, Great Ormond Street, Bloomsbury; The National Hospital for the Paralysed and the Epileptic (Albany Memorial), Queen Square, Bloomsbury; The Royal London Ophthalmic Hospital, Moorfields; The Hospital for Diseases of the Skin, Blackfriars; Bethlem Royal Hospital for Lunatics; The London Throat Hospital, Great Portland Street.

The teaching will be, as far as possible, of a practical character, including demonstrations of selected cases, and lectures on the diagnosis and treatment of the diseases for

the study of which the above mentioned hospitals afford facilities. There will be instruction in the use of the microscope, ophthalmoscope, laryngoscope, and aural and nasal specula. The twelfth course will consist of 88 lectures or demonstrations. Full information as to fees, &c., may be obtained from J. Fletcher Little, M.B., 32 Harley Street, Cavendish Square, London, W.

H.R.H. THE DUCHESS OF TECK and suite, who are staying at Bad Neuenahr, visited the neighbouring Apollinaris spring on Friday last. Her Royal Highness was conducted through the premises, and was much interested in watching the various operations of filling, corking, labelling, and packing the Apollinaris natural mineral water. The Duchess was much impressed with the very large amount of carbonic acid gas contained in the spring, and proceeded for a few steps down toward the sunken courtyard in which the spring issued from the ground, in order to experience the effect of the gas, and afterwards caused her son, Prince Alexander, and her suite to do the same in order to convince themselves of the volume and density of the carbonic acid gas there accumulated.—(*Communicated.*)

VIROL.—This is a new artificial food prepared by the Liquor Carnis Co., Limited, and intended to be a substitute for cod liver oil. It is described as a highly concentrated complete food, consisting of the proteids of beef and eggs, the marrow of beef or essence of bone, the carbohydrate—extract of malt—and the salts of beef and egg (including the lime salts of the shell) in proportions carefully adjusted to diet formulæ, and in accordance with modern physiological requirements.

The qualities of this new food have been tested in several of the Glasgow Hospitals, and personally we can testify that it is very agreeable to the taste. It may be used like preserves, spread upon bread, and for children who cannot be got to take cod liver oil it should prove a most useful preparation. We advise our readers to give it a trial.

L.G.B. "SOLOIDS" OF CORROSIVE SUBLIMATE.—We beg to direct attention to a very convenient method of obtaining disinfecting solutions, recently introduced by Messrs. Burroughs, Wellcome & Co., by the use of a preparation to which they give the name of "soloids" of corrosive sublimate. As these are made according to the formula given by Dr. Thorne Thorne

in the general memorandum with regard to disinfection, issued by the Local Government Board to sanitary authorities in 1892, with the view of disinfecting sick rooms, soiled linen, &c., &c., they have been designated L.G.B. "Soloids." Two "soloids" dissolved in a quart of ordinary water will make a solution of the strength indicated in the memorandum referred to above. Considerable difficulty has been experienced in obtaining a blue colour which will not stain linen, but in the "soloids" this difficulty has been entirely overcome, and they will be found free from objection in this respect. The "soloids" dissolve immediately in water without crushing, and afford the most portable and economic means for the preparation of disinfectant solutions. The L.G.B. "Soloids" are put up in bottles of 100 at 2s. per bottle. We have found on trial that the "soloids" dissolve readily in water, giving a pale blue coloured fluid, and we are of opinion that they form a very convenient portable disinfecting agent.

COLLEGE OF PHYSICIANS OF PHILADELPHIA—THE WILLIAM F. JENKS MEMORIAL PRIZE.—The third triennial prize of five hundred dollars will be awarded to the author of the best essay on "Infant Mortality during Labour, and its Prevention." The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with obstetrics, or the diseases of women, or the diseases of children;" and that "the trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia." The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U.S.A., before 1st January, 1895, addressed to Horace Y. Evans, M.D., Chairman of the William F. Jenks Prize Committee. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope

will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The Third Annual Meeting of the American Electro-Therapeutic Association will be held in Chicago, on 12th, 13th, and 14th September, at Appollo Hall, Central Music Hall Block. Members of the medical profession interested in electro-therapeutics are cordially invited to attend.

AMERICAN DERMATOLOGICAL ASSOCIATION.—The Seventeenth Annual Meeting will be held at the Hotel Pfister, Milwaukee, Wis., on the 5th, 6th, and 7th September, 1893. The meetings will last over two days, and as representing British Dermatology, we observe the name of Dr. H. R. Crocker of London, who will read a paper on "Lupus Erythematosus as an Imitator."

AMERICAN PUBLIC HEALTH ASSOCIATION.—The Twenty-first Annual Meeting, which will constitute an International Congress of Public Health, will be inaugurated at Chicago, on Monday, 9th October next. The Congress will last for six days, and will be held in the Art Institute Building, Chicago.

"The opening session of the Congress will be held in one of the large halls of the Institute, at 8 P.M., Monday, 9th October, and will be devoted to addresses of welcome by the President of the World's Congress Auxiliary, by the Mayor of Chicago, and by the President of the American Public Health Association, and to responses by foreign delegates. These will be followed by the Inaugural Address by the President of the American Public Health Association.

"The mornings of Tuesday, Wednesday, and Thursday, from 10 to 12 o'clock, will be devoted to discussions in general of the meetings of the Congresses upon the following topics:—

"*Tuesday.*—Diseases chiefly manifested in the air passages: Tuberculosis, Diphtheria, Pneumonia, their prevention or control through Public Health Service.

"*Wednesday.*—Diseases affecting the alimentary canal: the Diarrhoea of Childhood, Cholera, Enteric Fever.

"*Thursday.*—The Eruptive Fevers: Small-Pox, Measles, Scarlet Fever, and the diseases of modern life due to nervous conditions.

"*Friday* morning will be given up to a business meeting of the American Public Health Association.

"The general meeting of Saturday morning will close the Congress.

"The afternoons of Tuesday, Wednesday, Thursday, and, if necessary, Friday, will be devoted to the work of the Congress by sections as follows:—

"1. International, National, and State Hygiene: Its Methods and Relations, including Vital Statistics. ('State,' as here used, indicates an autonomous part of a nation, as a kingdom of the German Empire, an integral state of the American Union.)

"2. Municipal Health Service. To include the control of the infectious diseases of men and animals, offensive trades, water supply, the disposal of excreta, garbage, and the waste of manufactories, schools, and public assemblages.

"3. The Infectious Diseases of Men and Animals: Their Causes, Prevention, and Control."

Information may be obtained from the Secretary, Dr. Irving A. Watson, Concord, N.H.

Obituary.

PROFESSOR JAMES MILNE, PH.D.

IT is with much regret that we have to record the death, which occurred somewhat unexpectedly at his residence in Glasgow on the 23rd August last, of Professor James Milne. Dr. Milne was Professor of Chemistry in St. Mungo's College, and was well known as an extra-mural lecturer in the Glasgow Medical School, and as an analytical chemist. Before the foundation of St. Mungo's College, he was the Lecturer on Chemistry in the Royal Infirmary School of Medicine, having previously for a time taught the same subject in the Western Medical School. Dr. Milne also acted as one of the Examiners in Chemistry to the Faculty of Physicians and Surgeons. He was much esteemed by his students who, two years ago, as a token of their respect, presented him with a number of valuable works on chemistry. As a lecturer his style was lucid and concise, and as an examiner he was essentially courteous and fair.

REVIEWS.

Manual of Bacteriology, for Practitioners and Students, with Especial Reference to Practical Methods. By DR. S. L. SCHENK; Translated from the German (by the author's permission), with an Appendix, by W. R. DAWSON, B.A., M.D., Univ., Dubl.; with 100 Illustrations, partly Coloured. London: Longmans, Green & Co. 1893.

WE have no hesitation in cordially recommending this work to our readers as a handy and thoroughly reliable guide to the science of bacteriology. The present translation, which has been very well done by Dr. Dawson, is practically a new edition in English of Professor Schenk's *Grundriss der Bakteriologie*, published in Germany some months ago. It is not simply a translation, as numerous additions have been made both by Professor Schenk and the translator. An appendix, for which Dr. Dawson alone is responsible, and which deals with Haffkine's anti-cholera vaccination, the recent researches on the parasitism of protozoa, and on the action of light on bacteria has been added. From this it will be seen that the book is thoroughly up to date, and will thus be most useful to our laboratory workers.

With regard to the plan of the work, we have to say that in our opinion the author has succeeded admirably in his method of arranging his subject matter. The book constitutes a serious attempt to combine practical with systematic instruction in the science of bacteriology, and from a careful perusal of many of the chapters we can say that the attempt has been most successful. In the laboratory, therefore, the book will not only be one to which we may turn for information as to practical details and methods, but it will also be most serviceable when we wish to obtain a knowledge of the generic and specific characters of the different groups of bacteria. For the object which he has had in view we think the plan hit upon by the author of describing the different micro-organisms according to localities in which they are met with, thus rendering it possible to deal with the different practical methods of research in their proper places, the very best that could have been adopted. In no other way could he have had such a successful result. For the amount of ground it covers the book is not a large one, but the style is

so concise, and the descriptions are so lucid, that one does not experience that sense of incompleteness which is so often felt in the perusal of our smaller scientific works. The illustrations are excellently done, and, especially those showing the different forms of bacteriological apparatus, will prove of the greatest service to the reader.

The first chapter deals with the general morphology and biology of micro-organisms, and is a thoroughly graphic and readable brief exposition of the subject. The diagrams in this chapter are well chosen and thoroughly illustrative. The second and third chapters discuss the subjects of apparatus and reagents, the methods of preparing the different culture media, and the modes of cultivation—all clearly and concisely stated. In the fourth chapter we find information as to various methods of investigating bacteria by means of microscopic examination and by experiments on living animals. From the fulness of detail, and from the recognition given to the methods of different investigators, these chapters are sure to be of the very greatest use in the laboratory.

The next three chapters deal in a most satisfactory way with the bacteriological analysis of air, water, earth, and putrefying substances. Here we find special attention directed to the organisms, such as those of cholera, typhoid, tetanus, anthrax, &c., which are of pathogenic importance, whilst shorter notes are given of those which are non-pathogenic in nature. After an interesting chapter on the micro-organisms occurring in articles of diet, we find an important and practical account of the bacteriological examination of pus—a chapter which cannot fail to be of great service to practising physicians and surgeons. The remaining chapters deal with the micro-organisms of the different organs and cavities of the body.

The appendix by Dr. Dawson brings the work thoroughly up to date, discussing, as it does, communications published so recently as 20th May, 1893.

We have thus endeavoured to give our readers some idea of the contents of what we think is an excellent hand-book. But, apart from all purposes of practical utility, it is a most useful intellectual exercise to go through, even hurriedly, the different sections of a work such as this. The vast new field of biological research which it opens up, and the vivid pictures it gives of countless multitudes of living beings so minute as to escape detection by anything save the highest powers of the microscope, and yet possessing a natural history, a morphology, and a physiology all their own, will well repay the labour.

A Manual of Autopsies. By I. W. BLACKBURN, M.D.
Philadelphia: P. Blakiston, Son & Co. 1892.

THE Association of Medical Superintendents of American Institutions for the Insane have sought to adopt some uniform system of making and reporting autopsies, in order that data may be secured in such a manner as will yield reliable results. This manual has been written under the direction of a committee of the Association, in the hope of establishing such a system in each hospital.

The scope of the work is well indicated in the author's preface by the following paragraph:—"In this manual, intended as it is for a laboratory guide, no pretence is made to medico-legal accuracy; and when such points are mentioned, they are intended as hints rather than directions. For the same reason little is said about the examination of the bodies of the new-born, suicides, and those dead from violence. For information upon such questions the reader is referred to works given in the list at the end of the manual."

The examination of the brain is fully described, and well illustrated by over a dozen representations of the various aspects and sections, and the dissection of the organs of the thorax and abdomen is detailed clearly and concisely. At the end of the book useful directions are given as to hardening tissues, with mention of the agents to be employed for that purpose.

While taking exception to some expressions in the text, such as "deposits of atheroma," "foci of fat necrosis," we confidently recommend the book as a useful and reliable guide to the order and method of procedure in making and reporting an autopsy, whether in hospital or general practice.

Sciatica: A Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases. By A. SYMONS ECCLES, M.B., M.R.C.S. London: Macmillan & Co. 1893.

THIS book forms a most interesting monograph on the subject indicated in its title, and we have pleasure in heartily recommending it for perusal by our readers. Sciatica is a common disease in our west-country climate, and it is one whose pathology is not always very carefully considered, and whose management often proves unsatisfactory. It is,

accordingly, all the more necessary carefully to inquire into its "causes, nature, and treatment," as has been done by the present author.

Dealing first with causation, we find an analysis of 65 cases, in 50 of which exposure to damp or cold formed the exciting cause, while in 14 there was pressure from the contents of the rectum, and in 1 there was a rectal tumour. As regards predisposing causes, rheumatism is mentioned for 38 cases, gout for 12, anæmia for 6, scurvy for 1, alcoholism for 2, and over-fatigue for 1.

Under the heading of "Pathology and Mode of Onset," a chapter is devoted to the discussion of the manner in which the agents just mentioned exercise their deleterious effect, while in a special chapter the diagnosis is indicated between neuralgia, perineuritis, and neuritis, the differential points being tabulated as follows:—

"NEURALGIA.	PERINEURITIS.	NEURITIS.
Onset usually sudden.	May be sudden or gradual.	Supervenes on perineuritis.
Pain intermittent.	Continuous but subject to exacerbation.	Continuous.
Tenderness at certain points only.	Tenderness along portion of nerve affected.	Tenderness sometimes distributed over area supplied by nerve.
Decrease of surface temperature not always present.	Decrease of temperature always present.	Decrease of temperature always present, cyanosis common.
Tension may produce paroxysm or pain at tender points.	Tension increases pain and tenderness.	Tension increases pain, causes thrill or numbness.
Temperature - sense unaffected.	Temperature - sense unaffected.	Temperature - sense increased for heat.
Muscular twitching may occur during paroxysm.	Muscular starting, usually at onset of sleep.	Muscular paresis, atrophy, and R.D.
	Cramps.	Loss of tactile sensibility over areas of skin. Hyperæsthesia; paralgia, especially for-mication.
No thickening of nerve-sheath.	Thickening may be felt.	Ditto.
Associated with other neuralgias, especially facial.	Not associated with neuralgia elsewhere as a rule.	Ditto."

Coming to treatment, we find comparatively little reliance placed on drugs, while full details are given as to the ensuring of rest and warmth, and as to the employment of carefully

managed massage, electricity, and exercise—passive and active. For these details we must refer to the original, drawing, perhaps, special attention to the ingenuity of the warm flat-iron, with rheophore attached, described on p. 66. As an indication of the satisfactory nature of the recommended treatment, we may quote the following paragraph:—

“It may appear presumptuous to allege successful results in all cases of sciatica treated by rest and massage; but the fact remains that out of sixty-eight cases of sciatic affections not arising from visceral or pelvic disease, uncomplicated by disease of the hip-joint, neuromata, or complete destruction of nerve-tissue, sixty-three cases have been freed from all pain, lameness and stiffness, and have remained free from any trace of sciatica for periods varying from three months in forty-one cases, including some of the more severe examples, to six years in five cases. Six patients have suffered from recurrent sciatica after periods varying from six months to four years, four of whom have subsequently been subjected to the same treatment with good results, while ten have experienced occasional relapses, which have yielded to rest in bed for a few days. Of the remaining cases no record can be given, as treatment has not yet been concluded in three, and the others have been lost sight of.”

Ophthalmic Science and Practice. By HENRY JULER. Second Edition. London: Smith, Elder & Co. 1893.

THIS is a text-book of the practice rather than of the science of ophthalmology, and is an excellent one of its kind. It is profusely and, we think, well illustrated. Many of the drawings of the fundus are very well done, and must be of great use to the student. The author has also introduced a large number of micro-photographs, which are of considerable service in illustrating the pathological conditions which exist in the diseases described; indeed, pathological anatomy receives more attention than in any other book we have yet seen of similar size and design. Juler is also to be much commended in that at the beginning of each section he gives a short account of the normal anatomy of the part. Amidst the multifarious subjects which the medical student has in our day to “cram,” by the time he comes to ophthalmology it is often found that his knowledge of the anatomy of the eyeball is simply *nil*. Such a plan as is adopted in this

volume is, therefore, highly necessary, and should be of great assistance to the reader.

In some cases we think that there is a disproportion in the treatment of subjects. For example, the modern operation of extraction without iridectomy is dismissed in a few lines, whereas the detail of the removal of cortex by irrigation receives quite a long paragraph. Again, the subject of *nævi* of the eyelids is dismissed in a few lines, while *molluscum contagiosum* receives a full page.

In operating for glaucoma, Mr. Juler thinks that in most cases the iridectomy should be made upwards. No doubt, from a cosmetic point of view, that is sound, but we believe a safer plan is to operate at that part of the iris which responds best to eserine.

Altogether the book is thoroughly to be recommended, and one which both students and practitioners will find satisfactory.

A Handbook of Diseases of the Eye. By HENRY R. SWANZY.
Fourth Edition. London: H. K. Lewis. 1892.

FROM amongst the many elementary text-books of ophthalmology, we have always singled this one out as being the best for junior students. This new edition perfectly maintains the very high reputation of its predecessors. What we most admire is the clearness of Mr. Swanzy's style, making the book pleasant reading, and the freshness of his information. Further, Mr. Swanzy describes and discusses the operations required for different diseases, along with the disease itself, and does not relegate them to a chapter at the end.

Probably the weakest part of the volume is that which deals with the refraction. It is quite impossible for the student to gain any adequate knowledge of the physics of lenses, and of refractive media generally, from the few paragraphs which form the first portion of the volume under consideration. The refraction of the eye itself is, however, somewhat better done, and there is a good account of the method of retinoscopy and of the ophthalmoscope. The chapters on the diseases of the conjunctiva, cornea, uveal tract, and eyelids are excellent. We notice a description of Knapp's roller forceps, of which instrument the author has had a considerable experience in the treatment of acute granular ophthalmia. The chapters on the optic nerve and

on amaurosis and amblyopia are excellent, and may well be read by the physician as well as by the ophthalmic surgeon.

Altogether, we have no hesitation in saying that for a beginner Mr. Swanzy's book is one of the best in the English language, and forms an extremely good introduction to the study of ophthalmology.

La Pratique Dermatologique et Syphiligraphique des Hopitaux de Paris, Aide-Memoire et Formulaire. Par le PROFESSEUR PAUL LEFERT. Paris: J.-B. Baillière et Fils. 1893.

THIS little work should be useful to the general practitioner. It is a *résumé* of the different methods of treatment of skin disease recommended by the Parisian authorities on dermatology. It is termed a "reflex" of the teaching and practice of l'Hopital St. Louis, l'Hopital du Midi, and of l'Hopital de Lourcine, and is the result of the collaboration of eighty of the physicians and surgeons of the hospitals of Paris. The different skin diseases are arranged in alphabetical order, and the treatment of each is shortly stated under the name of the authority recommending it. The utility of the book is further increased by the addition of an index of authors and an index of subjects. For those of our readers who are conversant with French the book should be useful, from the large number of prescriptions and formulæ which it contains.

A Practical Text-book of the Diseases of Women. By ARTHUR H. N. LEWERS. Fourth Edition. London: H. K. Lewis. 1893.

As the three previous editions have been fully reviewed in these pages, there is little to say of this edition, which is, for the most part, a reprint of the third edition. As Dr. Lewers informs us in his preface, however, he now recommends gradual dilatation of the cervix, except in cases where the operation is undertaken soon after confinement or miscarriage, or during pregnancy. In general he uses laminaria tents, using Hegar's dilators subsequently if necessary. The tents are preserved in a 1 per cent solution of corrosive sublimate in absolute alcohol.

Dr. Lewers is an advocate of the supra-vaginal amputation

of the cervix for cancer in all cases where complete extirpation is not indicated. He has had remarkable success in this operation, which he describes as difficult, but not dangerous. He says:—"For cancer beginning in the vaginal portion, there can be no doubt that the supra-vaginal amputation of the cervix is the right treatment. For cancer beginning in the cervix, above the vaginal portion, it seems probable that, if the case be seen early enough, vaginal hysterectomy ought to be preferred. For primary cancer of the body, there is, of course, only total extirpation." The operation is described in detail. Dr. Lewers first makes an incision anteriorly, working in front of the uterus as much as possible with the finger; a posterior incision is then made, and deepened with the knife, keeping as close as possible to the cervix. He says it does not matter if the peritoneal cavity, as frequently happens, is opened at this stage. The ends of these incisions are then joined on each side; these lateral incisions, however, merely extend through the mucous membrane till after a ligature is applied on each side through all the depth of the lateral attachment of the cervix up to the height at which it is proposed to amputate. These ligatures are apt to slip, so Wells's forceps may be used before cutting the lateral attachment, and left *in situ* for forty-eight hours. The anterior part of the cervix is then cut through till the lumen of the canal is seen. The anterior margin of the stump is then secured to the cut edge of the anterior vaginal wall. The posterior part is then cut, and similarly secured with silver wire.

The Johns Hopkins Hospital Reports. Vol. III: Nos. 4, 5, 6. Report in Pathology, III. Baltimore: The Johns Hopkins Press. 1893.

THIS Hospital, opened in the spring of 1889, has already produced from its laboratory work of an exceedingly high order, and we have evidence in the present volume that this high standard is being maintained. The Press likewise deserve special mention, for in the matter of type, paper, and illustration the publication in question might well serve as a model of what all such "Hospital Reports" should be.

The fasciculus before us contains five articles, which we will enumerate:—"Multiple Lympho-sarcomata, with a Report of Two Cases," by Simon Flexner, M.D.; "The Cerebellar Cortex of the Dog," by Henry J. Berkley, M.D.; "A Case of Chronic

Nephritis in a Cow," by W. T. Councilman, M.D.; "Bacteria in their relation to Vegetable Tissue," by H. L. Russell, Ph.D.; "Heart Hypertrophy," by Wm. T. Howard, M.D.

The first of these, perhaps the most important, is of special merit, not only as "a contribution to the infectious nature of lympho-sarcoma," but also as a careful review of the literature on this vexed subject. The writer draws his conclusions in the main from a very elaborate and detailed microscopic examination of two cases, both of which presented very unusual features. In both the primary lesion was regarded as having its seat in the alimentary canal. It consisted of a more or less generalised lymphoid infiltration, with nodular lymphoid formations, mainly in the mucous and submucous tissue. Associated with this was a very extensive and widespread degeneration—mainly of the nature of a hyaline necrosis of the mucous membrane—followed in one of the cases by connective tissue new formation. The stomach manifested a similar condition, though less marked. The liver showed large or small lymphoid accumulations, while the kidneys revealed a more diffuse infiltration. The lymphatic glands throughout the body, the lungs, the spleen, and other organs were free from disease. This anomaly does not find explanation, nor, indeed, receive much consideration.

The profound parenchymatous degeneration associated with the presence of nodular and diffuse lymphoid formations—a condition which existed, with slight exception, from the pylorus to the anus—argues, according to Dr. Flexner, in favour of some morbid agent gaining entrance to the alimentary canal from without, and subsequently through the circulation, affecting the other organs. In all the affected organs in both cases he has found and figured, scattered amongst the tissue elements, numerous round, oval, or irregularly shaped bodies, consisting of a rim of protoplasm enclosing one or two round, oval, or crescentic particles, and not exceeding in dimensions half the size of a red blood corpuscle. Without in any way committing himself as to the nature of these bodies, he suggests that they may possibly play some causative rôle, and be "perhaps protozoa."

The paper is an extremely suggestive one, and our only regret is that space does not permit a more detailed reference and criticism.

The second article, on "The Cerebellar Cortex of the Dog," by Dr. Berkley, is a valuable addition to our knowledge of the structure of this intricate portion of the nervous system, confirming, as it does, in the main, the observations of previous

investigators, and throwing light on various points hitherto somewhat shrouded in obscurity.

Dr. Councilman, in a short and somewhat inconclusive paper, describes "A Case of Chronic Nephritis in a Cow," caused, he affirms, by the presence and action of an ovoid bacillus.

Dr. H. L. Russell's paper on "Bacteria in their Relation to Vegetable Tissue" is worthy of very careful attention. The study of the relations which bacteria bear to the animal kingdom has, we believe, too much monopolised the attention of investigators, to the comparative exclusion of the sister kingdom. Most have been satisfied to regard the higher plants as virtually immune from the attacks of microbes; and, with a few exceptions, no one has devoted himself seriously, for any length of time, to this branch of phytopathology. To Dr. Russell we therefore owe a debt of gratitude for bringing the matter before the notice of the profession in such an able and interesting manner.

As the result of numerous experimental inoculations of healthy plants with microbes, both pathogenic and non-pathogenic, the writer arrives at the following main conclusions:—

That artificial inoculation of higher plants with various microbes proves that a considerable number of different species can withstand the action of the living plant organism for a not inconsiderable length of time.

That saprophytic microbes generally are more capable of living in plant tissue than those forms which are facultative parasites on the animal body.

That inoculation of plants, not taxonomically related to the natural hosts of bacterial plant parasites, with species of microbes naturally parasitic on vegetable tissue, shows that while the bacteria are unable to spread, they can survive at the inoculation point in large numbers.

That not only are numbers of different species of bacteria able to *live* in the plant for 40 to 80 days or more, but many, mostly saprophytes, are able to *spread* throughout the tissues to a limited extent.

That local distribution always takes place in an upward direction—not as a result of the transpiration stream, but rather as a result of actual growth of the microbes—and that the bacteria are intra- rather than inter-cellular.

That normally the healthy plant, with intact outer membranes, is free from bacteria within its tissues, but that through wounds in the stem bacteria may enter, and live

for a long time; and, moreover, in the case of parasitic species on plants, that microbes may, under certain circumstances, effect an entrance *without* the intervention of a wound.

That spreading is probably effected through some change in the cellulose wall, which renders it permeable to bacteria.

The subjects of plant resistance and immunity are then dealt with, and the paper closes with a bibliography and an appendix giving a list of the bacterial plant diseases, with a brief *résumé* of their principal characteristics.

Dr. William T. Howard's article on "Heart Hypertrophy" completes the volume. It is in the main a statistical paper, and necessarily shares the disadvantages of such compilations. Records were gathered together of 360 autopsies, and evidence of cardiac hypertrophy was found in no less than 105 of these.

The various causative factors and their relative frequency was found to be as follows:—Arterio-sclerosis, 59 per cent; nephritis, 13·4 per cent; valvular lesions, 12·4 per cent; adherent pericardium, 7·6 per cent; work, 3·8 per cent; tumours, 1·9 per cent; aneurysm of heart wall, 0·95 per cent; hæmic plethora, 0·95 per cent. The great relative frequency of arterio-sclerosis is so striking that we cannot help feeling the writer has not in every case clearly discriminated between cause and effect.

Edinburgh Hospital Reports. Edited by G. A. GIBSON, M.D., D.Sc.; C. W. CATHCART, M.A., M.B.; JOHN THOMSON, M.D.; D. BERRY HART, M.D. Volume I. Edinburgh and London: Young J. Pentland. 1893.

Reports from the Laboratory of the Royal College of Physicians of Edinburgh. Edited by J. BATTY TUKE, M.D., and D. NOËL PATON, M.D. Vol. IV. Edinburgh and London: Young J. Pentland. 1892.

THE Edinburgh medical school is to be congratulated on the fact that it is now able to issue two important annual volumes—one recording the chief work done in the clinical department, the other, which has now reached its fourth annual issue, the more purely scientific researches of the College of Physicians Laboratory. We confess that we are somewhat behind our brethren of the East in these matters. Many of us would like to see a laboratory similar to that

of the College of Physicians started in Glasgow; but although the difficulties as regards a laboratory are great, we think there is no reason why we should not have an annual volume of hospital reports, as our supply of clinical material is probably unsurpassed outside of London. We hope some day to have a Glasgow volume similar to that of Edinburgh.

As is fitting in the first issue of a new series, the volume opens with papers of a historical and general nature. Prof. Grainger Stewart writes a short account of the Royal Infirmary, and Dr. Joseph Bell records his reminiscences of the surgical side from 1854 to 1892. Both of these communications will, we have no doubt, be read with great interest by old Edinburgh men. The description of Syme by Mr. Joseph Bell strikes us as particularly good and happy. For the most part the papers are of the usual kind met with in such volumes, but one or two we would like to notice more particularly. Dr. John Wyllie's article on Extra Auscultation is a singularly able and very valuable contribution to practical medicine. It reminds us of the sound, acute, clinical observation of the olden times, and we hope that Dr. Wyllie will furnish many similar papers to the "Reports." We would strongly recommend our readers in busy general practice to read this paper, and we shall be astonished if their verdict does not agree with ours. On the whole, we are glad that Dr. Wyllie does not insist upon the word "otacousis" being added to the terminology of medicine. The value of his paper is altogether apart from questions of terminology. There is an interesting series of papers on Tricuspid Obstruction by Prof. Gairdner, Dr. R. W. Philip, and Dr. G. A. Gibson. We well remember the Professor's prelections on the heart which is now made the subject of his contribution to the "Edinburgh Reports," and the evident pleasure with which he demonstrated the various points to the class. It is unnecessary to refer further to the papers in detail; but, on the whole, the volume has been accomplished with credit and success.

In the Laboratory Volume we notice that gynæcological and obstetric subjects still occupy considerable space, and that Dr. Noël Paton continues his observations on the flow of bile in man; whilst Dr. Gulland summarises his conclusions on the function of the tonsils. There are many other papers of value.

Verhandlungen der Berliner Medicinischen Gesellschaft aus dem Gesellschaftsjahre, 1892. Herausgegeben von dem Vorstande der Gesellschaft. Band XXIII. Berlin : L. Schumacher.

THIS bulky volume is divided into two parts. The first of these consists of the transactions of the Society, and represents an exceedingly satisfactory and varied year's work. The second comprises a number of the papers read during the course of the session by various members. These papers, when read in conjunction with the discussions to which they gave rise, are full of instruction, and give us, at some length, the most recent views of our *confrères* in Berlin on a large number of subjects of general interest.

Space permits only mention of a few of the more important articles :—

Adolph Baginsky contributes some further observations on the *Ætiology* of Diphtheria, and records a case of the same disease in which tetanus symptoms masked the diagnosis.

The *Ætiology* of Whooping-Cough is dealt with by Julius Ritter, who gives an interesting *résumé* of his bacteriological investigations.

From the pen of J. Hirschberg is a very full and well illustrated paper on the Occurrence of Intra-ocular Parasites (*Cysticerci*) in the Human Subject.

Martin Mendelsohn, in another article, discourses on Piperacin as a Solvent for Uric Acid.

A paper on the Prostitution Question by A. Blaschko, with the important discussion thereon, may be read with advantage in connection with a very exhaustive article on the Prophylaxis of Syphilis.

P. Heymann contributes a short paper on the Symptomatology of Tuberculosis, dealing particularly with the somewhat rare occurrence of tubercular ulceration of the buccal mucous membrane, while A. Albu proffers a clinical and experimental contribution to the Treatment of Pulmonary Tuberculosis by Creasote.

Laryngologists will find an account of two cases of Pachydermia Verrucosa of the Larynx by Edmund Meyer, and the record of a case of Total Extirpation of the Larynx by Julius Wolff, and all will doubtless read with interest a paper on the Rational Therapeutics of Stammering by H. Gutzmann.

Various references will be found to Cholera, as well as a statistical paper by Paul Guttman on the recent epidemic

in Berlin. By the same late lamented physician a case of Congenital Malformation of the Left Half of the Diaphragm, with hernia of the great omentum into the left pleural cavity, is fully detailed.

Papers on Reparative Surgery, on the Surgical Treatment of Hepatic Abscess, on Urinary Calculi in Women, on Punctured Wounds of the Subclavian Vessels, on Deciduoma Malignum, &c., may be mentioned as containing matter of both general and special interest.

The above cited articles merely give one a general idea of the contents of this interesting volume.

In future issues an alphabetical index would very considerably facilitate reference.

Braithwaite's Retrospect of Medicine: a Half-Yearly Journal.

Vol. 107. January—June, 1893. London: Simpkin, Marshall, Hamilton, Kent, & Co., Limited.

THE present issue of this well known half-yearly volume contains a general index of Volumes CI to CVI inclusive. Otherwise its features are similar to those of preceding years.

The Mineral Waters of Harrogate. By JOHN LIDDELL, M.D., Physician to the Harrogate Royal Bath Hospital, &c. Edinburgh and London: Young J. Pentland. 1893.

AFTER a preliminary account of the climate and general amenities of Harrogate, this little book proceeds to give the results of careful analyses of the many springs to be found at that health resort, as well as reference tables for comparison with the waters of other spas. In discussing the action of the Harrogate waters upon the body generally, the author records a series of investigations he has himself conducted on the excretion of urea and uric acid. In dealing with the effects of the "cure," he very wisely recognises not only the ingredients of the waters, used internally and externally, but also the atmospheric conditions and the mode of life enjoyed by the patients. He concludes most fittingly with an "enumeration of diseases benefited by the mineral waters and climate of Harrogate," with some observations upon the *rationale* and method of treatment.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1892-93.

MEETING XIV.—12TH MAY, 1893.

The President, DR. JOSEPH COATS, in the Chair.

I.—FIBROUS UNION AFTER OSTEOTOMY—OPERATION FIVE MONTHS LATER—PATIENT SHOWN.

BY MR. HENRY RUTHERFURD.

The patient in this case was a girl of 10 years, upon whom Mr. Rutherford had performed osteotomy in the Royal Hospital for Sick Children seven months previously, for anterior curvature of the tibia. The operation had been followed by fibrous union, and, six weeks before the date of meeting, Mr. Rutherford had had to open up the part, when he had found a narrow gap between the ends of the bone, occupied by white, dense fibrous tissue. This tissue had been removed. Then a wedge of bone had been chiselled away from the outer surface of the upper fragment, and after this wedge had been chipped up, it had been packed into the gap. The child had been kept lying up for three weeks, and then been sent home with a splint on. The union was now perfect, and the result as regards curvature quite satisfactory.

Mr. Rutherford raised the question as to whether there was any explanation for the occurrence of non-union after the first operation, under the tolerably favourable conditions which had existed. There was no reason to suggest any lack of fixation. The theory he had himself formed was that there had been some overstretching of vessels at the back of the bone. After removing the wedge from the front of the bone at the original osteotomy, he was aware that the bone had been straightened with considerable force, and this strain might have led to overstretching of the vessels as mentioned. The toes had been noticed to be dusky for the first week, and it was possible that osseous union had

been kept in abeyance by interference with the circulation. The date of the first operation was 24th October, 1892; of the second, 21st March, 1893. When the fibrous tissue was removed the bony surfaces seemed to be quite unaltered.

Dr. J. Wallace Anderson asked if the child had been convalescent from any illness at the time of operation, and was answered in the negative.

Dr. W. G. Dun asked as to the apparatus which had been used after the first operation.

Mr. Rutherford—Posterior or half-box splint.

II.—SPECIMENS FROM A CASE OF SOFTENING OF THE BRAIN,
WITH HÆMORRHAGE AT THE SURFACE, FROM THROMBOSIS
OF THE MIDDLE CEREBRAL ARTERY.

BY DR. JOSEPH COATS.

In showing the specimens from the above case, Dr. Coats said that, in the primary branches of the middle cerebral artery, obstruction by embolism was common, but that it was not common to find obstruction there by thrombosis, whereas it was common in the small branches to find obstruction by thrombosis on the top of atheroma. He thought that the softenings of the brain at the surface which one met with in old people were due to this latter condition. But here was a case in which he had found one of the primary branches of the middle cerebral artery filled by coagulum, and along with this, softening of the part of brain supplied, (lateral surface of middle part of temporo-sphenoidal lobe), as well as hæmorrhage over a considerable tract of the surface of the temporo-sphenoidal lobe, and extending back over the occipital lobe. He had at once supposed, on seeing the gross lesions, that it was a case of embolism, and had searched for the embolus, but without finding any; on making sections of the vessel, he had found the thrombosis, and seen it to be due to atheroma, both the thrombus and the diseased vessel wall being now shown under the microscopes. There was, besides, an old thrombus of orange colour, and with crystals of hæmatoidin evident in it; in one part of it there was an obvious new-formation of blood-vessels.

This case, Dr. Coats said, was peculiar also in respect to the hæmorrhage, a very considerable layer of blood having been found covering the internal surface of the dura mater; at its thickest part this layer was three quarters of an inch in thickness, and it indented the surface of the brain. The

question of the origin of this hæmorrhage was open to discussion, but there would appear to be little doubt that it had commenced in connection with the plugging of the artery. This was suggested by the fact that it was greatest at the place of plugging and adherent at that region. Whether the distension of veins that occurred on the plugging of an artery was the cause of it, was debatable, but he could not find any other explanation.

The softening of the brain presented the ordinary fatty characters, each little twig being clothed with a mantle of fat, and large numbers of compound granular corpuscles being easily found.

Clinical details of the case were necessarily very meagre, as the patient had been found unconscious, and brought to hospital with practically no history of his illness. His age was 58. At the *post-mortem* his heart was found to be flabby, the external fat being abundant. No thrombi were discovered in the cavities.

Dr. Lindsay Steven said that his experience, with regard to obstruction of the primary branches of the middle cerebral, confirmed what *Dr. Coats* had stated, and that he did not think thrombosis to be common in the larger branches apart from embolism. The atheroma in the present case did not seem to be very pronounced, and thus it was strange that there should be both old and new thrombi found on the same vessel.

III.—SPECIMEN OF OLD SEPARATION (?) OF THE LOWER EPIPHYSIS OF THE FEMUR FROM OSTEOMYELITIS.

BY MR. CLARK AND MR. RUTHERFURD.

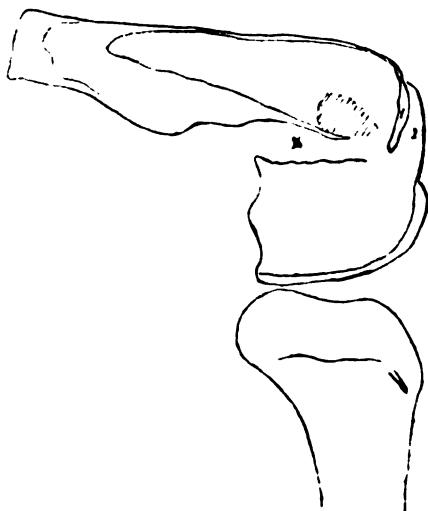
Mr. Rutherford's report is as follows:—

"The specimen consists of the lower fourth or thereby of the right femur and the upper fourth of the tibia, bound together at the knee by firm fibrous adhesions, which have to some extent encroached on, but have not destroyed, the cartilages. The limb is flexed nearly at a right angle, at a level which seems to be about two inches above that of the articulation. A sinus on the inside of the thigh at its lower end runs into the back of the femur.

"On removing the soft parts on the inner aspect, it becomes plain that the flexion has taken place between the diaphysis and lower epiphysis of the femur. The epiphysis has been carried backwards till its upper surface rests against the posterior surface of the diaphysis. On sagittal section this is

still more plain, and between shaft and epiphysis is seen a granulation-lined cavity containing a flat sequestrum; into this cavity a probe passes from the sinus.

"The rarefied lower end of the shaft is covered over by a comparatively firm layer of bone, which connects the shaft with the epiphysis; at the sides, strong buttresses of bone extend upward from the epiphysis to the shaft. Immediately above the sequestrum cavity there is considerable thickening



Section of knee joint

x, shows cavity in which lay sequestrum
shows a part, dense fibrous tissue.

1, shell of compact bone.
2, buttress in joint.

of the posterior wall of the femur. The condition was evidently due to an osteomyelitis at the lower end of the diaphysis (juxta-epiphyseal region).

"Worthy of note was the evidence of imperfect bony repair in the presence of a considerable mass of fibrous tissue in the centre of the lower end of the diaphysis.

"As to whether there had been here a sudden and complete separation from suppuration at the upper surface of the epiphyseal disc, with subsequent union in a bad position, or whether the condition were more truly to be described as a

fracture, he did not feel quite sure. Fracture would mean a yielding of the partially destroyed diaphysis."

Mr. Clark said that the case had had to come from a country-town a considerable distance from Glasgow, and that that was probably the reason why it had not been sent into hospital sooner. When he had seen it first the general appearances had been those of disease of the knee-joint; but some thickening of the femur, which he had noticed, had led him to diagnose osteomyelitis. The specimen he considered to be specially interesting as one of separation of the epiphysis. In his *Archives of Surgery*, Mr. Hutchinson had recently spoken of the great rarity of museum specimens of separation of the lower epiphysis of the femur, and mentioned that he had himself seen only one such specimen. There had come under Mr. Clark's charge three cases altogether; the other two had been traumatic, but there was no history of that kind here.

Mr. Knox thought that it was rather difficult to be sure that there had been separation of the epiphysis here; he would be inclined to view it as a fracture. In the first place, there was a sharp spicule at one point of the shaft, and that suggested fracture; for, with separation of the epiphysis, they would have expected a comparatively round smooth termination for the end of the diaphysis. In the second place, both the epiphysis and the end of the diaphysis had been the seat of disease, and thus a slight amount of force (for example—in the changing of dressings, &c.) would have been sufficient to constitute traumatism. He had seen a case in which fracture had occurred from a slight jerk while the parts were being dressed.

Mr. Rutherford had not been able to find any evidence of disease in the epiphysis. The lower end of the diaphysis was undoubtedly diseased; but whether the epiphysis had merely been flooded away, or whether there had been a fracture, he could not say. [The fracture theory seems better to account for the layer of compact bone in front, and for the lateral buttresses running down to the epicondyles.—H. R., 22nd August, 1893.]

IV.—SPECIMEN OF SYPHILITIC STRICTURE OF THE RECTUM— PERFORATION OF BOWEL BY BOUGIE.

By MR. HENRY RUTHERFURD.

This specimen consists of the rectum practically in its entire length. The lower $5\frac{1}{2}$ inches show well-marked alterations;

the calibre is much diminished, but nowhere is it less than will admit the tip of the index finger, the wall is much thickened and of a leathery unyielding texture, this feeling being very striking when the finger was introduced into the rectum in the fresh condition. The inner surface of the cicatricial part is smooth and fibrous-looking, with occasional irregularities. About $4\frac{1}{2}$ inches from the anus on the anterior wall there is a star-shaped wound with swelled, partly-agglutinated margins, involving the whole thickness of the wall.

The specimen was removed from a married woman, aged 29, who died of peritonitis following the use of bougies. She had had attacks of obstruction over a period of five years. Two years before her death, bougies were used with temporary benefit.

V.—SPECIMEN ILLUSTRATIVE OF CYSTOSCOPIC DIAGNOSIS.

By DR. JAMES H. NICOLL.

The patient was a lady of 60, suffering from carcinoma uteri, and the passage of numerous small calculi of uric acid, the passage of which was more or less painful, but was never accompanied by retention. Her troubles had existed for nearly three years. On 13th February, retention of urine occurred, accompanied by great pain in the urethra, and relieved at intervals of a few hours by the passage of small quantities of bloody urine. The symptoms were supposed to indicate the impaction in the urethra of a calculus too large to pass, and accordingly a sound was introduced. Nothing in the way of a stone or other obstruction was detected, but the retention and pain were completely relieved. Several days later these symptoms returned, and the sound was again employed with a similar result.

Subsequently the cystoscope was introduced, and an irregular, greyish, soft mass of tissue seen floating free in the bladder. This, on removal by a pair of ordinary "crocodile" urethral forceps, proved to be a slough (specimen shown), of about $1\frac{1}{2}$ by 1 inch area of the bladder wall. A few days later the ulcer from which it had separated was discovered by the cystoscope on the upper part of the posterior wall. It was ultimately found to be an extension of the carcinoma from the vagina and cervix uteri.

It would appear that the retention and pain had been due to the engagement in the urethra of the slough, the soft nature

of which prevented detection by the sound, the passage of which displaced it.

Several points in this case are worthy of remark.

There is an impression amongst not a few members of the profession that the cystoscope is of no practical value—is, in fact, a “scientific toy.” This may be true of the earlier forms of the instrument. That it is not true of the modern electricity-lit instrument such a case as this helps to demonstrate, and those of us who are familiar with its capabilities are content to wait in confidence that a few years of further work in improving its structure and acquiring practice in its use will dispel that impression entirely.

The cause of the disappointment experienced by some is, I think, that they have expected too much of the cystoscope, and have failed to appreciate its real present position. It is open to any man—any man who can use the instruments—to take up the ophthalmoscope or the laryngoscope at any time for any case, and to feel tolerably certain of making out, in a few minutes, all of importance the case contains. Anyone approaching the use of the cystoscope with the same expectations is foredoomed to disappointment, and will fail to learn anything from a case in which one who knows the difficulties may be able to make a very complete diagnosis.

At the present time the cystoscope is the only means of establishing a diagnosis in many obscure cases of disease of bladder or kidney, and its great practical value in this respect, in very many instances, is not to be lost sight of because there are many difficulties in its use, and because these difficulties still not infrequently foil the efforts of those even who are most familiar with cystoscopic work.

The present is not a suitable occasion for discussing these difficulties in full, but perhaps I may be permitted to refer very briefly to several of them—all of frequent occurrence—which presented themselves in this case.

On one of the occasions in which the cystoscope was introduced, so much pain ensued, even after the application to urethra and bladder of a 10 per cent solution of cocaine, that, for that day, the examination had to be abandoned. The surgeon who uses the cystoscope must be prepared, in a certain, fortunately small, proportion of his cases, to administer chloroform in order to make a full examination.

On another occasion, so much hæmorrhage was taking place into the bladder that, after trying repeated cautious washing

out with cold boracic lotion and styptics, the attempt at examination had to be postponed to another day. Not infrequently, in cases of hæmaturia, the surgeon has to "wait his chance" for several days.

On no occasion, of several on which this case was examined, did the examination occupy less than half an hour, and an hour or more is often necessary for a complete examination.

On the occasion of the first examination, during which the slough was detected, I feel confident I saw the ulcer also, but, taking it for the shadow cast on the wall by the floating slough, I did not bring it into focus, and so fell into error. The opposite error is much more common—viz., that of mistaking shadows of growths, &c., for depressions beyond them. Careful focussing speedily rectifies such errors.

On the subsequent occasion when the ulcer was searched for, I did not at first detect it, but, on withdrawing the cystoscope, and introducing a further quantity of fluid and re-examining, it was clearly visible, having previously been concealed by a fold of the partially distended bladder wall.

The knowledge that such difficulties exist in its use, quite as much as the demonstration of its successes, should help to establish the reputation of an instrument which, with all its present defects, is the only means, short of an exploratory cystotomy (which, in addition to the risks of any major operation, carries with it the penalty of at least a month of bed), of forming a diagnosis in many obscure bladder and kidney troubles.

What I should like to convey by these remarks is the opinion that the surgeon, who goes to a consultation with his cystoscope in his bag, to be used as briefly as his laryngoscope or his ophthalmoscope, and who is prepared to base his opinion on a single examination, places himself in the position of having his luck to thank in the comparatively small number of cases in which he makes a correct diagnosis, and no one but himself to blame in the much larger number of cases in which he fails to make a diagnosis, or makes a false one; while the surgeon, who decides to have his patient under observation for several days, if necessary, and to make more than one examination, if need be (and patients with chronic or obstinate bladder troubles are usually willing to submit to this), though he may fail in a proportion of his cases, will, in the larger number, be able to determine and to demonstrate the nature of the disease, and thus save his patient the risks and inconveniences of exploratory section.

VI.—SPECIMENS OF SYNGAMUS TRACHEALIS.

BY DR. R. M. BUCHANAN.

Dr. Buchanan showed the above as card specimens, with the following explanatory note:—

Syngamus Trachealis.—A parasite causing the death of enormous numbers of young domesticated birds. It occurs in the trachea (a little above the bifurcation) attached to the wall by the two sucker-like heads—the smaller representing the male, the larger the female.

“When the bird succumbs to the disease (known as ‘gapes’), it is generally found that the parasite is present in such numbers as to have obstructed the air tube.”

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

BY DR. R. S. STEWART.

Paralysis Agitans and Hysteria. By Chabbert (*Archives de Neurologie*, June, 1893).—The case here recorded presented nearly all the essential symptoms of paralysis agitans, muscular rigidity and tremor, characteristic expression and attitude, the desire for change of place, and fatigue. The only symptoms absent were the sensation of heat, which was replaced by one of cold, and the phenomena of propulsion and retropulsion. The affection commenced at the age of 53, in consequence of disappointment, and was at first characterised by pains, designated rheumatismal, but probably due to muscular contracture. The rigidity preceded the tremor. The case presented, in varying degrees, the two varieties—the trepidant and the convulsive, with progressive invasion. In addition, there were present certain reflex phenomena, exaggerated knee-jerk, masseteric reflex and ankle clonus, attributed to a dynamic alteration of the ganglionic elements of the cerebro-spinal axis, and certain well-defined hysterical symptoms, such as concentric retraction of the visual field, dyschromatopsy, and blunting of smell and hearing. The occurrence of a convulsive seizure in youth is also held to point to the existence of hysteria.

In considering whether in this case there is simply a superposition of the two neuroses, or whether hysteria and paralysis agitans are in reality one and the same affection, the writer points out that the coexistence of these is not an exceptional occurrence; that the distinction between the two is not well-defined; that they originate in the same causes; and that the onset in both is very often sudden; and he concludes that the two affections are very nearly related.

Recent Definitions of Hysteria. By Janet (*Archives de Neurologie*, June and July, 1893).—Summarising the recent studies of hysteria, this writer adopts the following as a brief description of the disease:—Hysteria is a mental affection belonging to the considerable group of the diseases of degeneration; it has only very vague physical symptoms, consisting especially in a general diminution of nutrition. It is particularly characterised by nervous symptoms; the principal is a weakening of the faculty of psychological synthesis, a narrowing of the field of consciousness; a certain number of elementary phenomena, sensations and images, cease to be perceived, and appear suppressed from personal perception. There results from this a tendency to the permanent and complete division of the personality, and to the formation of several groups of independent phenomena. These systems of psychological facts alternate one with the other, which gives rise to seizures, somnambulisms, and subconscious acts. Finally, this deficiency of psychological synthesis favours the formation of certain parasitic ideas, which are manifested by the most varied troubles, in appearance solely physical (the accidents). In two words, hysteria is a form of mental degeneration, characterised by the tendency to permanent and complete doubling of the personality.

The Amok of the Malays. By Ellis (*Journal of Mental Science*, July, 1893).—This is an interesting account of a condition to which the natives of the Malay Peninsula are liable, and from which the expression "to run amuck" is derived. It is still believed by some that the real reason for committing amok is a religious one, a belief that to be killed in so doing is a sure road to heaven, but this, it is pointed out, is an error. For there is nothing in the Koran bearing on the point; and further, the amoker stabs with the same indifference those of his own race and religion as he would others, and amok was prevalent before the conversion of the Malaysians to Mahomedanism. The exciting causes of amok are to be found chiefly in some moral shock, but malarial fever is not infrequently responsible. In the writer's opinion it is a variety of impulsive homicidal insanity, characterised by certain premonitory symptoms, brooding, giddiness, and red vision, culminating in the ferocious outbreak, which is followed by complete forgetfulness of the offences, and by sullenness and apathy, lasting from a few hours to a few days.

General Paralysis about the Period of Puberty. By Wiglesworth (*Journal of Mental Science*, July, 1893).—From an analysis of eight cases, two of which are described in full, it is found that the average age at the commencement of the disease is 14 years; that the duration shows a tendency to be prolonged, in the six completed cases the duration being, on the average, four and a half years; that there is a high proportion of females, five being girls and only three boys; that, as regards the mental state, there is an immense preponderance of the demented type; that the signs of puberty do not appear at all, or are arrested if they have commenced, and that along with this there is an arrest of bodily development generally; that excessive emaciation is a very striking feature, as is also extreme atrophy of the brain; that a neuropathic taint is a disproportionate feature in the aetiology. In the writer's opinion, the constant straining effort entailed by modern civilisation is likely to be associated with an increase in the victims of general paralysis; that along with this the disease tends to appear in the individual at an earlier age than formerly; that the disease is to be met with at a far earlier age than has, until lately, been thought possible; and that the period of puberty, and even childhood, can no longer be regarded as exempt from its attacks.

The Formation of Subdural Membranes. By Robertson (*Journal of Mental Science*, April and July, 1893).—The conclusion arrived at is that the explanation of pachymeningitis hæmorrhagica is to be found, not in an active inflammatory hyperæmia of the dura mater, but in the passive engorgement of a compensatory nature, caused by a process analogous to dry-cupping.

This is brought about by a shrinkage of the brain, which, owing to its suddenness, and to a deficiency of cerebro-spinal fluid, has not been compensated for.

Acute Mania following Rupture of the Rectum by Enema Thirteen Days after Ovariectomy. By Butler-Smythe (*Journal of Mental Science*, July, 1893).—On the eighth day after removal of a cystic papilloma of the ovary, rupture of the rectum was brought about by the administration by mistake of enemas, and on the third day after that occurrence, the first symptoms of mental disturbance appeared. In two days more the patient was maniacal, and remained so for seven weeks, but recovered completely. The maniacal outbreak is attributed to the septic condition of the patient, increased, probably, by absorption of faecal matter and gases.

SURGERY.

By HENRY RUTHERFURD, M.B.

Direct Immobilisation of Fractures. Senn.—For all varieties of fracture, but more especially in compound cases, and in ununited fractures requiring operation, Senn proposes the use of a ferule of decalcified bone. Strain upon this is to be prevented by fixation of the limb in plaster of Paris. He narrates three cases treated by him in this manner, as well as some experiments on dogs. The ferule is perforated freely, so as to allow of the outgrowth of granulations from the bone, and in order to provide for the more easy absorption of the ferule. In his paper he gives an account of the various means that have been used for this purpose, the different methods of wiring, nailing, and use of a solid intra-osseous splint of bone or ivory (Heine, Langenbeck, and Bircher).—(*Annals of Surgery*, August, 1893.)

Surgery of the Hypertrophied Prostate. White, of Philadelphia.—As to the nature and etiology of the condition, White challenges the theory put forward by Guyon, that it is a part of a "disseminated arterial sclerosis or general atheroma, not limited to the vessels of the genito-urinary system, but when occurring in them producing both the prostatic hypertrophy and the rigid or feeble bladder, with their resulting symptoms."

Arterial sclerosis, says White, involves defective blood supply, and the association with this of the extensive overgrowth found in the common variety of prostatic hypertrophy is contrary to pathological law. Moreover, recent investigations show that the original changes in the gland occur, in many instances, in early middle life, and long before the appearance of extensive arterial disease.

Harrison's statement that the primary changes are in the bladder, and that the depression of the posterior wall precedes hypertrophy, is also open to objection. It obliges us to regard the prostate as primarily a urinary organ. As soon as a little pouching of the trigone takes place, with accumulation of residual urine, efforts at expulsion give rise to the inter-ureteral bar, and later to general prostatic overgrowth; whereas on the ground of embryology, comparative anatomy, and physiology the prostate is essentially a sexual organ.

It may be maintained rather that the growth or growths which make up the enlargement in prostatic hypertrophy are analogous to those fibro-myomata so frequently found in the uterus (*cf.* Velpeau and Thompson).

There follows a careful discussion of the symptoms in prostatic enlargement and the indications for treatment, to which we refer our readers. The idea is also propounded that possibly castration might be of some avail in this condition, the atrophy of the gland in eunuchs being cited as of interest in

this relation, and the suggestion being made that this would be on a par with oophorectomy in uterine fibroids.

The paper is full of information, and will be read by all interested in the subject.—(*Annals of Surgery*, August, 1893.)

False Strictures (Spasm of the Urethra).—Reliquet calls attention to the frequency with which these occur, the mistakes in diagnosis and treatment to which they give rise, and classifies the conditions to which they are due. In too many cases the surgeon readily accepts as evidence of organic stricture the fact that a bougie is grasped somewhere in its passage through the urethra.

A tight prepuce, a tight meatus, affections of the glands of the urethra, crystalline deposits in the urethra, form the first group. Next come affections of neighbouring organs, under which head are included the rectum and anus, in conditions varying from distension by scybala to the presence of hæmorrhoids, ulcers, and neoplasms. Under affections of the glands of the urethra and rectal troubles are included many cases which may be called prostatic, but where the obstruction is out of proportion to any actual hypertrophy of that organ.

Mention is next made of "contracture permanent de l'urèthre" as result of long standing at work, of exposure to cold, and of disorders of the genital functions. This last leads up to the large class of cases due to affections of the nervous system. Here Reliquet's observations are of great interest. Ataxic patients, more especially, are liable to suffer from misapprehensions as to their urinary difficulties.—(*Progress Médical*, 1893.)

Fatal Asphyxia following the Administration of Nitrous Oxide Gas.—Reports of two cases are given in the *Journal of the British Dental Association*, 15th August, 1893. One of these was a case of self-administration (reported at the Clinical Society of London, 26th May). The patient was found seated on a chair, his head had fallen forward on his knees, and the face piece was still in contact with his face. He was an apparently healthy man, aged 40. Artificial respiration was employed. At the *post-mortem* examination, the venous system was found engorged with dark fluid blood. No blood clots were found. The right heart was engorged, the left empty. The organs were all healthy. It seemed that only a small quantity of gas had been used, and that the fatal asphyxia was due to the face piece remaining in contact with the face (Dr. Gage Brown).

In the other case, which is quoted from the *Eric Morning Despatch*, 7th June, 1893, the patient, a lady, seemed to have recovered from the anæsthetic, had left the operating chair, and crossed the room twice to rinse her mouth. She then cried, "Oh, my head," and would seem to have become comatose. The diagnosis of apoplexy was made. She would seem to have died forthwith. No *post-mortem* is recorded. She was considered to be in good health, and had taken the gas without any bad effects on two or three occasions previously.

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

Myxœdema and Thyroid Feeding.—Professor Grainger Stewart, in a clinical lecture, draws attention to some of the risks which attend this method of treatment. He considers that whilst the thyroid in moderate doses stimulates the heart, larger doses have an opposite effect, and that therefore very stringent precautions must be adopted when this treatment is attempted in patients whose hearts are known to be unsound. Such patients should be confined to bed from the beginning of the treatment, and the doses should be smaller than those given in more robust cases. He narrates the clinical

history of a patient (female, æt. 38) who suffered from myxœdema, and who was known to be the subject of mitral disease. This woman, on several occasions during the thyroid treatment, developed marked symptoms of cardiac failure. Two of these attacks occurred after slight exertion, a third followed the use of pilocarpine (one-sixth of a grain given ten minutes after 50 grains of fresh thyroid), and a very serious condition was produced on another occasion when 60 grains of thyroid had been administered. In this last attack there were conspicuous signs and symptoms of pulmonary œdema, the patient became unconscious and appeared moribund, and it was only after eight ounces of blood had been withdrawn that consciousness returned.

Dr. Stewart also refers to other cases of a similar nature, more particularly to two cases reported by Dr. Murray of Newcastle. Both of these were elderly people with arterial and cardiac degeneration, and both died from cardiac failure after the thyroid treatment had been commenced.—(*Practitioner*, July, 1893.)

An interesting series of observations on the physiological action of thyroid extract has been published by Dr. Ord and Mr. E. White, B.Sc. They show that under the influence of the thyroid the quantity of urine is increased, that the amount of nitrogen excreted is in excess of that administered in the food, and that the patient loses weight.—(*British Medical Journal*, 29th July, 1893.)

[This is quite in harmony with the case reported by Dr. Hamilton Marr in the August number of this *Journal*.—Ed.]

The Treatment of Chlorosis.—Dr. George Herschell contributes the reports of three cases to the discussion upon the relation between constipation and chlorosis. He considers that the attacks of urticaria and acne which are not uncommon in chlorotic girls point decidedly to toxic absorption from the bowel, and states that such attacks are frequently developed shortly after taking purgative medicine. This, he believes, may be explained by the increased amount of secretion produced by the purgative favouring the absorption of faecal matter. Further evidence that such absorption does occur is afforded by the appearance of a rose-red colouration when nitrous-nitric acid is added to the urine. This, Dr. Herschell believes, indicates the presence of a chromogen of intestinal origin, and he makes this test prominent as an aid to diagnosis. He insists upon the importance of abdominal examination, even when the bowels are said to act regularly, and describes in detail the method he adopts in order to detect faecal accumulation in the colon. In all cases where such accumulation is probable, Dr. Herschell advocates the flushing of the colon with hot water. He employs from 2 to 8 quarts of water, introducing it into the bowel by means of a siphon douche, the patient being placed either in the genupectoral position or with the pelvis raised on pillows. These details are absolutely necessary, he says, to secure success, because very frequently the accumulation of faecal matter occurs in the cæcum and ascending colon.—(*Practitioner*, May, 1893.)

Dr. Stockman has investigated the action of iron, arsenic, hydrochloric acid, and saline purgatives in cases of chlorosis. He is quite convinced that iron is the only drug which produces appreciable improvement in the condition of the blood, and is of opinion that the inorganic preparations are much more helpful towards recovery than the organic compounds.—(*British Medical Journal*, 29th April and 6th May, 1893.)

Nitro-Glycerine in Epileptic Paroxysms.—In the *New York Medical Journal*, 29th July, Dr. Bates advocates the use of the nitrites, not only as soon as the aura is recognised with a view to check the development of the "fit," but also after the paroxysm has actually commenced. He injects $\frac{1}{16}$ grain of nitro-glycerine, and claims that this shortens the attack, saves fatigue, and lessens the after effects. In twelve cases he has had no failure.

Opium Poisoning.—A case is reported from the Southport Infirmary in which the patient, though showing every evidence of improvement, developed hyperpyrexia (109° F.), and died from cardiac failure.

Dr. Daily recommends the stretching of the sphincter ani with the bivalve speculum as a stimulant measure whenever the respiration flags.—(*Medical Record*, quoted in *Clinical Journal*, vol. ii, p. 249.)

Herpes and Arsenic.—In discussing the different varieties of herpes, Mr. Jonathan Hutchinson expresses the opinion that the recurrent form is definitely controlled by the use of arsenic. He quotes several cases in which he has met this form upon the cheek or neck, and one very remarkable case in which the eruption affected the palm of the hand.

In another article, Mr. Hutchinson describes a case of "herpetiform pemphigus" of four years' duration, in which immediate arrest followed the administration of arsenic. Whenever the drug was suspended the eruption returned, but perseverance for two years has produced a practical cure.—(*Archives of Surgery*, July, 1893.)

A Case of Paraldehyde Habit.—This is reported by Dr. Frank Elkins. The patient, a man of 65, was admitted as a voluntary patient to the Royal Asylum, Edinburgh, on 23rd November, 1892. Two years before admission he commenced to use paraldehyde for the relief of insomnia, from which he had long suffered. A habit was soon established, and the dose of the medicine increased, until shortly before he entered the asylum he was taking sixteen ounces of paraldehyde a week. He had lost two stones in weight, and was so weak that he had to be fed like a child. The action of the heart was weak and irregular, the appetite abnormally large, and the patient suffered from hallucinations of sight and hearing, and from delusions of an unpleasant character. He proved himself a most troublesome patient, but was discharged in good health on 21st February. Marked improvement appeared to date from the administration of sulphonal.—(*Edinburgh Medical Journal*, July, 1893.)

Pharmacopœia Danica.—After an interval of twenty-four years, a new edition of the Pharmacopœia of Denmark was issued in May of the present year. Contrary to previous custom, it is no longer written in Latin, but in the national language, conformably with the custom now adopted in this country as well as in Germany. The testing of chemicals is a prominent feature in the volume, and each pharmacy is required to have a fully equipped laboratory for conducting analytical operations, and the pharmacist is held responsible for the purity of the medicines purchased from him. A further useful regulation is the compulsory addition to all labels on bottles, &c., holding poisonous materials, of three crosses—XXX. The official additions include most of the more recently introduced remedies.—(*Pharmaceutical Journal*, 8th July, 1893.)

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

Intubation of an Adult, followed by a Fatal Œdema of the Larynx after Extraction of the Tube. Max Thorner, A.M., M.D., of Cincinnati.—The following notes are interesting inasmuch as they show one of the dangers attending intubation in chronic laryngeal stenosis:—

"J. B., 18 years old, consulted me on 15th August, 1892. Since 8 years of age he had been suffering from what was considered asthma, the dyspnoea having increased of late to an alarming extent. The history was entirely negative; syphilis could not be traced. The patient appeared to be in great

distress. His respiration was laboured, noisy, and accelerated on exertion, his face had a livid colour, and was covered with a cold, clammy perspiration. The stenosis of the larynx was extreme. The ventricular bands were greatly thickened, and the vocal cords buried in masses of infiltrated tissues. The encroachment on the lumen of the larynx increased in the subglottic space, the opening for breathing being scarcely the size of a thin lead pencil.

"After a few days the smallest tube of the set for adults, made according to Leffert's directions by Tiemann & Co., of New York, was introduced without any difficulty. The tube is somewhat larger than the largest tube of the set used for children. Before it was introduced it was well oiled, and the larynx anæsthetised with a 5 per cent solution of cocaine. The patient could readily breathe through the tube, and complained of no pain. It was my intention to permit the tube to remain in the larynx for twenty-four hours, but on the following morning, about fifteen hours after the introduction, the patient returned and begged me to remove the tube. He stated he was greatly annoyed by it, and could not take any food whatever. I extracted the tube without any difficulty, with the understanding that it was to be reintroduced in the evening. The patient was relieved, was able to take some water, and left my office after a few minutes, feeling comparatively comfortable. About fifteen minutes after he had left me, I was called to the street, about half a square away, where the patient was lying dead on the sidewalk. He had walked about one and a half squares from my office, where he felt bad, and asked a driver of a passing wagon to take him to my office. Scarcely had he been seated when he fell back. The driver stopped, and, with the aid of some passers-by, lifted him from the wagon. When he reached the sidewalk he was dead. A physician who happened to pass there shortly afterwards found no sign of life in him.

"The unfortunate accident can easily be explained. After the pressure exercised for fifteen hours by the tightly-fitting tube upon the infiltrated tissues had been suddenly relieved, a sub-glottic œdema ensued, causing a fatal issue within a short time.

"This rather unusual case teaches us a lesson to keep a patient upon whom intubation for a chronic stenosis of the larynx has been practised under strict surveillance for some time after the extraction of the tube."

The Necessity for Combining a Consideration of the Objective and the Subjective in Affections of the Throat, Nose, and Ear.—Dr. P. M'Bride, in the *Edinburgh Hospital Reports*, vol. i, page 574, writes a short but eminently practical paper with the above title. As a protest against the unreflecting pursuit of routine practice in throat work, the paper is well worthy the careful consideration of all general practitioners, and perhaps even of throat specialists themselves.—J. L. S.

Books, Pamphlets, &c., Received.

Sciatica : a Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases, by A. Symons Eccles, M.B.(Aberd.) London : Macmillan & Co. 1893.

Movable Kidney and Intermitting Hydronephrosis, by G. D. Knight. London : Baillière, Tindall & Cox. 1893.

Operation Blank (containing Blanks for 50 Surgical Operations), prepared by W. W. Keen, M.D. Second edition. Philadelphia : W. B. Saunders.

- The Rotary Movements of the Human Vertebral Column and the So-called Musculi Rotatores**, by Alfred W. Hughes, M.B. Reproduced with Additions from the "Archiv für Anatomie und Physiologie," 1892. Edinburgh: E. & S. Livingstone.
- On Diseases of the Lungs and Pleuræ, including Consumption**, by R. Douglas Powell, M.D. Fourth edition. With Illustrations. London: H. K. Lewis. 1893.
- Dissections Illustrated: a Graphic Handbook for Students of Human Anatomy**, by C. Gordon Brodie, F.R.C.S.; with Plates drawn and lithographed by Percy Highley. In Four Parts. Part II: The Lower Limb. With Twenty Coloured Plates and Six Diagrams. London and New York: Whittaker & Co.
- The Mineral Waters of Harrogate**, by John Liddell, M.D., Physician to the Harrogate Royal Bath Hospital. Edinburgh and London: Young J. Pentland. 1893.
- Report of a Board appointed to inquire into the Prevalence and Prevention of Lead-Poisoning at the Broken Hill Silver-Lead Mines, New South Wales.** Sydney: Charles Potter, Government Printer. 1893.
- A Handbook of Obstetric and Gynæcological Nursing (being the Fifth Edition of a "Manual for Midwives")**, by the late Fleetwood Churchill, M.D.; revised and greatly enlarged by Thomas More Madden. With numerous Illustrations. Dublin: Fannin & Co. 1893.
- The Diseases of Childhood (Medical)**, by H. Bryan Donkin, M.D. Oxon., F.R.C.P. London: Charles Griffin & Co. 1893.
- A Contribution to the Pathology of the Vermiform Appendage**, by T. N. Kelynack, M.D. With Illustrations and Bibliography. London: H. K. Lewis. 1893.
- The Disease of Inebriety from Alcohol, Opium, &c., arranged and compiled by the American Association for the Study and Cure of Inebriety.** Bristol: John Wright & Co. 1893.
- St. Thomas's Hospital Reports (New Series)**, edited by Dr. T. D. Acland and Mr. Bernard Pitts. Vol. XXII. London: J. & A. Churchill. 1893.
- Brown's "South Africa:" a Practical and Complete Guide for the use of Tourists, Sportsmen, Invalids, and Settlers.** With Six Coloured Maps and Two Diagrams. London: Sampson, Low, Marston & Co. 1893.

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ORIGINAL ARTICLES.

DEATH CERTIFICATION AND REGISTRATION IN SCOTLAND: ITS PRESENT DEFECTS AND A PRO- POSED REMEDY.*

By JOHN GLAISTER, M.D.,

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IN the Report of the Royal Sanitary Commission of 1869, which was presented to Parliament in the session of 1870-71, the following important statement may be found:—

“It is important that there should be no ‘uncertified’ deaths—that is, no cases in which deaths and their supposed causes are reported to the registrars by any other than the medical attendant of the deceased person, or some qualified medical man. In every such case there is not only a fact lost for the statistics on which a part of the study of public health is based, but a great opportunity permitted for fraud and crime.”

With that statement every one interested in public health will doubtless agree, as will also those, probably, whose duty it is to enquire more closely into the subject which forms the closing paragraph of the foregoing statement.

* Read before the British Institute of Public Health at Edinburgh, August, 1893.

Since the passing of the Registration Act of 1854, and more particularly in these recent years, it has become noteworthy that efficiency in the registration of the cause of every death has not been attained; and from time to time the attention of the public and of the State has been drawn to the facts.

In the year 1871 the late Dr. Fergus, of Glasgow, dealt with the subject. In 1875 the able medical officer of health for Glasgow, and the President of one of the Sections of this Congress, Dr. Russell, in an elaborate monograph, directed the attention of his local authority to the great prevalence of "uncertified" deaths in Glasgow.

In 1883, the *Lancet* (vol. i, p. 1106) made a very serious charge against the Registrar-General for Scotland, and against the value of Scottish statistics generally. It stated that the Registrar-General was officially ignorant on the whole matter of "uncertified" deaths; that *one-fifth* of the total deaths in Scotland was uncertified; and that, in consequence, the statistics for Scotland were of little practical value. This paper compiled, from the weekly returns of the Registrar-General, a table which bore out its contention, but it was exceedingly erroneous, as was afterwards proved.

Up till 1885, indeed, when the annual return for 1881 was published, there were no corrected data available in Scottish statistics; and those of the weekly reports, liable as they were to considerable after-correction, caused the *Lancet* to overstate its case—not, however, through any fault due to it, but simply to the incompleteness of official returns.

About this time my attention was attracted to the subject, but in the absence of official data, I had to apply to medical officers of health and registrars in Scotland for officially correct details. These were kindly placed at my disposal; and from them, in a paper which I read before the Philosophical Society of Glasgow in the session 1884-85, and which is printed in the *Transactions* for that year, I was enabled to discuss the whole question. That paper, entitled "An Enquiry into the Necessity for Legislative Reform in Scotland in regard to Uncertified Deaths," may be consulted by those who are desirous of pursuing the question statistically. Suffice it to say, here, that my enquiries showed that the *Lancet* had much overstated the case. However, there was still a strong case remaining for enquiry and improvement. In addition to these steps taken to direct public attention to this question, it is pleasing to note that Dr. Cameron (now Sir Charles, and a member of the Select Committee of the House of Commons on this question), in his place in the House,

kept the question alive by putting pertinent questions to the Government from time to time.

All those specially interesting themselves in this subject were pleased when the present Government determined to enquire into the whole question by a Special Committee of the House of Commons: and they look forward with hope to early realisation of reform. So much for the historical side of the subject.

It need hardly be pointed out here that all deaths, which are duly and properly certified, become available statistical units from which certain deductions respecting the public health may be made, and that those the causes of which are not certified are missing links of the statistical chain which cannot be replaced, and which render, therefore, the chain imperfect.

Not only are "uncertified" deaths blots on the statistical page, but they give rise to questions of the gravest importance—those of undetected crime. And equally from the former as from the latter point of view, does this question of the certification and registration of deaths form a fitting subject of discussion.

It is not my purpose to discuss at any length the statistical side of the subject in this paper, but I submit a table showing the difference in the prevalence in Scotland of this class of deaths as between the year 1881 (the date of the first annual return in which they are treated) and the year 1890 (the date of the last annual report published), and giving the statistics for England for the latter year.*

This shows a very satisfactory decrease during the last ten years; but one cannot avoid noting that even in 1890, of 79,004 total deaths in Scotland, 4,569 (that is, 5·8 per cent) persons were buried, the causes of whose deaths were not known. There is a general reduction all over, except when we come to deal with groups of districts. While in the principal town-districts, large and small town-districts, and insular-rural districts a decrease is noteworthy, this does not equally obtain in the mainland-rural districts. Here there is a positive increase since 1881. In this year this class of deaths amounted to 7 per cent, but in 1890 it had risen to 9·5 per cent (*vide* Table III).

It is also to be borne in mind that in the total deaths which are officially noted as certified are included those, numbering annually some hundreds, the causes of which are guessed from simply an external examination of the body after death, and those also which are labelled as being due to

* *Vide* Appendix. Tables I, II, III, V, and VI deal with Scotland, and Table IV with England.

"natural causes." Certification of death from mere external examination of the body may, in certain cases of accident, of suicide, and of disease, be quite possible; and to this extent this mode of certification is quite legitimate and sufficient; but apart from this class, such a mode of certification must always be deprecated, since the cause given is more likely to be wrong than right. It is quite true that this mode is not infrequently adopted by police surgeons, who, however, are well aware that it is an unsatisfactory method, and who would be well pleased to get rid of the duty. Of this condemnation I personally take my share. From the point of view of prevention of gross crime it may be satisfactory enough, but from that of statistical accuracy it cannot be defended.

Let me mention one or two established facts arising from an analytic examination of the figures of "uncertified" deaths, without troubling with figures. In the first place, they are most frequent at the age extremes of life—in the very young and in the very old—at the times when life is of the least value; in the second place, they are more incidental to illegitimate than to legitimate offspring; in the third place, that there has been a very notable decrease since the Friendly Societies Act (1876) came into operation, which practically demands the production of a medical certificate before monies can be obtained; and in the fourth place, that "uncertified" deaths are fewer in England than in Scotland.

It seems to me, however, that so long as four and a half thousand persons in Scotland are buried in any one year, the causes of whose deaths are not known, so long will there be a reasonable demand for remedy of the defect, since it produces statistical deficiency at a time than which there never was one when public health statistics were more necessary and more demanded as an outcome of recent legislation, and so long will there remain dissatisfaction in the minds of those who believe that in such a number lie the victims of undetected crimes.

What is an "uncertified" death?

In Scotland it means a death the cause of which has not been duly certified either by a registered medical practitioner or by the procurator-fiscal, and in England, by a practitioner or by the coroner. Doubtless there are few who will disagree with this definition, and there are fewer who would be inclined to extend the qualification of certifying to medical botanists *et hoc genus omne*, midwives, or other unqualified persons.

The state has properly placed the responsibility on the

shoulders of those who are most able to exercise it; but, while that is so, it is clearly, at the same time, the duty of the state to know the cause of the death of every person, who has lived, even for the shortest period, under its protecting influence, not only in the direction of the prevention and discovery of crime, but in that also of the public health.

It is noteworthy, too, that while the State placed the responsibility of certifying the cause of death on the registered practitioner, it made no provision in its Registration Acts for remunerating the certifier; nay, more, failure to certify on demand incurred a penalty. For the long period of thirty-nine years the medical profession has performed this duty loyally, although I cannot add ungrudgingly.

It has been already noted that the percentage of "uncertified" deaths is higher all over Scotland than in England. This is probably not the place to discuss the value of the coroner's enquiry or its general efficiency, but it cannot be denied that it is an important factor in keeping down this class of deaths in England.

Why should "uncertified" deaths be more prevalent in our part of the island? Let us examine the machinery for certification and registration in Scotland, and see wherein it differs from that in England.

In Scotland it consists of—(1) The Registration Acts and (2) the enquiry of the procurator-fiscal.

The Registration Acts (which must be read together) at present in operation are—(1) The original Registration Act of 1854 (17 and 18 Vict., cap. 80); (2) the first amending Act, 1855 (18 Vict., cap. 29); and (3) the second amending Act of 1860 (23 and 24 Vict., cap. 85).

Let us briefly consider the points in these Acts dealing with our subject.

Section 38 of the original Act enacts that where a death occurs in a house, one of the nearest relatives present at the death shall, within *eight* days thereafter, personally attend on the registrar and tender the necessary information, under a penalty of *twenty* shillings in case of failure.

Section 39, that in the case of a death occurring not in a house or in a tenement, the occupier of the house or tenement in which the dead person resided shall give notice to the registrar within twenty-four hours after he knows the fact, under a penalty not exceeding *forty* shillings.

Section 41 of the original Act, and Section 14 of the second amending Act, both deal with the relation of the medical practitioner to the registrar, to the effect that the medical

person who attended during the last illness of a deceased person is bound to transmit to the Registrar, within *seven* days thereafter, a certificate of the cause of death; failing to do so, the registrar must then forward to him a certificate-form, and, by a printed or written requisition, shall require him to return the said form duly filled in, within *three* days after the receipt thereof, under a penalty not exceeding *forty* shillings in case of failure.

From the foregoing provisions, then, it is at once apparent that the maximum legal period which may elapse between a death and the receipt by the registrar of the medical certificate is *eleven* days, and that the maximum legal period within which a death must be registered is *eight* days; any longer periods would be illegal, and would bring both the lay and medical reporters of the death within the operation of the statutory penalties.

In ordinary practice, in populous places, it works out that, in a large number of cases, the acts of registration and certification are effected at the office of the registrar at one and the same time, and before the interment of the body; that, in another proportion, the act of certification does not happen till after the interment, where in the act of registering the death a medical attendant has been named, and where his certificate is not sent in till he receives the official notice of the registrar; and that, in a very small proportion of cases, no certification of death is effected, by reason of the medical man named by the legal informant of the death declining to furnish a certificate.

With the bulk of cases the work of the registrar is plain-sailing—*i. e.*, with those cases which are duly and properly certified, and where the nature of the cause of death gives rise to no suspicions. The proportion of cases which does, however, give that official some trouble is the class of cases where there has been no medical attendant, and where there are no *apparent* suspicious circumstances on the face of the information tendered. Where suspicion emerges in a case, the duty of the registrar is defined by the Registration Act—*viz.*, he must intimate the case to the procurator-fiscal. But where no suspicious circumstance is obvious in the information tendered, and where there is no medical certificate supplied, the duty of the registrar is differently interpreted. Some are inclined to assume that the very fact that a person has died without medical attendance creates suspicion, and warrants them reporting to the fiscal; others, again, reading the Registration Acts, are of opinion that their clear duty is to register the death in the light of the information tendered by the

relatives, issue an extract for burial, and label the death as "uncertified."

Whatever view may be the right one, I do not stop here to discuss, but in any case there are grave objections to placing the responsibility of initiating the enquiry of the fiscal on the shoulders of an official, who must judge of the presence or absence of suspicion from information tendered by those who would be most likely to conceal such if there were any, and who, besides, is not in a position to estimate the character for veracity of his informants. It seems to me unfair to place this *onus* on the shoulders of an official whose duties are chiefly clerical, and who is ill-competent to judge on many points in this connection.

The Registration Acts of Scotland take no cognisance whatever of still-births; but more of this again.

Let me next direct attention to the differences in procedure in the English Registration Act of 1875, at present in operation.

This Act enacts—1st, That the legal informant of the death must register the death *within five days thereafter*; 2nd, that the medical attendant of the deceased person must provide the legal informant of the death with a certificate duly setting forth the cause of death; and 3rd, that the legal informant of the death must convey to the registrar the aforesaid certificate.

The obvious advantages arising from the above are, that the shorter maximum period is all in favour of earlier registration, of direct certification, and where no medical certificate is forthcoming, of earlier enquiry, if thought necessary.

The effect of the legal informant having himself to convey the certificate of death from the medical attendant to the registrar means, in practice, that the cause of death is ascertained before the body is put under ground; for, without the authorised extract of the registrar, no body can be legally interred.

But should no medical certificate be forthcoming, it is in the option of the registrar either simply to note the information tendered, issue extract for burial, and label the case "uncertified," or, the more common course, to forward intimation of the death to the coroner, who may hold a formal or an informal inquiry, the result of which must be returned by him to the registrar.

The longer maximum period in Scotland, eleven days, operates disadvantageously in respect of early registration—at least of early certification—if not of both.

Thanks to the operation of the Friendly Societies' Act, 1876, and the extensive habit of minor insurance prevalent among the working-classes, in a very large number of cases

the registrar receives the medical certificate at the time of the registration and before the interment. This happens because under this Act the registrar is the official named to issue such extracts of the medical certificates for insurance purposes as will not exceed the sums laid down in the Act for which children at two periods of age are insurable.

In many cases, however, the medical certificate does not reach the registrar until some days have elapsed after the registration and after the interment.

This long period, too, contributes to fraud and perjury. It tempts persons to name a medical attendant who afterwards declines to certify, and meanwhile the body is buried.

Instances are not unknown in Scotland where the death of the same person has been registered in more than one office for the sake of pecuniary benefit, and also of *deaths being registered which never occurred, and of burial certificates being issued by registrars where there were no corpses to inter.*

It may be objected by some that, in respect as in England the relative of the deceased person has to carry the medical certificate of death to the registrar, and in respect, sometimes, it is required to put down on such certificates causes of death which must be hurtful to the feelings of the relatives, such as suicide, insanity, syphilis, alcoholism, delirium tremens, &c., the certifier would suffer prejudice at the hands of the relatives. That is quite likely, but the duty is obligatory. Probably, however, this objection is more sentimental than real, since the information given in a certificate is confidential as between the practitioner and the State.

It has been already observed that the Registration Acts take no interest in *still-births*. That is probably due to the fact that as a still-born child, as the old legal phraseology puts it, never was "a reasonable creature in being, and under the King's peace," the State can have no concern over an infant which never had a legal existence. But is it wise that no record should be made of *still-born* children? I think not. In the first place, because there is every reason to believe that in our country, as abroad, the adjective still-born is capable of considerable elasticity of meaning, and is illegally used. We know that prosecutions have had to be made because of this. But there is another and, I think, more important reason. We are in the habit of estimating the fecundity of a population by birth-rates based on the number of live-born children in a given time to a given population. It is true that in this way we estimate living units of population, but, at the same time, our birth-rates are not

rigidly correct. By our present method of calculating birth-rates, we only estimate the fecundity of any population by the number of children born in a given time, and who have survived their birth. It seems to me that there are many children born dead who die simply owing to the accidents and circumstances of birth, and who would have survived had the circumstances been but slightly changed.

To truly estimate the fecundity of a population, it is, to my mind, absolutely essential that all the children, live or still-born, must enter into the calculation. We presently separate the legitimate from the illegitimate births; it would be very simple to have a separate column for still-births.

Of course, such an estimation would only be made where the absolute fecundity of any given population was to be ascertained.

It is to be deplored that a midwife, or "handy woman," who cannot legally sign the certificate of the cause of death of any infant who has had an independent existence for the shortest time, should have it in her power to certify the fact of a still-birth to an undertaker, and secure burial of the body without the least further enquiry. It is this power, and the elasticity in interpretation of the term "still-born," that contribute to looseness in practice.

It is an interesting fact that in Glasgow, from 1783 till 1855, the still-births were reckoned in the death-rates of the city, although they were then designated burial-rates.

The second factor contributing to reduction in the number of "uncertified" deaths in Scotland is the enquiry of the procurator-fiscal.

This enquiry arises solely and exclusively out of the question of *culpa*, and it is conducted by the procurator-fiscal as public prosecutor, with the object of determining whether or not anyone is to blame, and whether or not anyone is to be prosecuted.

The procurator-fiscal is less anxious to know the precise cause of the death as he is to know whether or not it was due to a culpable cause. He, therefore, has little concern in deaths as statistical units, and his function operates solely from the criminal, and not from the statistical side.

This official receives the information which prompts his action (*a*) from the police; (*b*) from the public; and (*c*) from the registrars.

The Registration Acts do not define the class of cases into which his enquiry shall be made, except that the registrars shall report to him those deaths in which suspicion emerges,

whether they be duly certified by a medical practitioner or not.

In practice, however, this official enquires into deaths resulting from violence, into sudden deaths, and deaths under suspicious circumstances. My experience, as a police surgeon, leads me to say that the term "sudden" is capable of much elasticity of meaning.

In the chief towns the duty of making the enquiry is placed on the police surgeon and a detective officer in the first instance, who report separately to the fiscal.

The police surgeon is asked to make an external examination of the body, and from it, when possible, to certify the cause of death; meanwhile, the detective officer is making enquiry into the other circumstances. If the police surgeon feels himself warranted in hazarding a guess at the cause of death, and that in conformity with natural disease, and should nothing criminal emerge from the investigations of the criminal officer, the enquiry is closed, and the cause named in the medical certificate is reported to the registrar as the cause of death.

In many cases, police surgeons can certify with accuracy the cause of death, as in cases of violent death by accident, homicide, or suicide, or in cases where the cause lies on the surface; but in a large class of cases the external examination affords no clue to the cause of death. It is but too true that many of the certificates granted under such circumstances, although returned in conformity to the circumstances of the cases, are as likely to be wrong as right. The police surgeon who declines continuously to certify from an external examination alone, will very quickly find himself remonstrated with. The chief factors which regulate the liability to error in such certificates are—1st, the impossibility of accurate diagnosis of the cause of death from a mere external examination of the body, however much this may be assisted by extraneous evidence, such as the known presence of disease in the person, &c.; and, 2nd, the inability to give, or the wilful withholding of, such information by those associated with the deceased, as might enable the surgeon to form an intelligent opinion.

It must always be borne in mind that these enquiries are made among the very persons whose object and desire it would be to conceal everything from those enquiring which might involve them in further trouble. This also tends to inaccuracy.

In many cases, police surgeons report that they are unable to certify the cause of death. It is then the option of the fiscal to order a *post-mortem* examination. Should the

enquiry of the criminal officer tend in the direction of a closer scrutiny being required, then probably such examination is made under warrant; if not, then the fiscal will probably not order a *post-mortem*, and will report to the registrar that the cause is unknown, or "natural causes." Without question, fewer *post-mortem* examinations are now ordered than formerly; economy of a parsimonious type seems to prevail at present in the Scottish Treasury; and there is no doubt that, so far as establishing the true cause of death is concerned, the enquiry of the fiscal is now even less efficient than in former years.

We have no precise means of determining how far this enquiry tends to reduce the number of uncertified deaths. Those who are interested on this point, so far as it could be worked out, I would refer to my former paper. It is to be regretted that the Registrar-General for Scotland does not, in his Annual Report, furnish a table, showing the gross returns of deaths certified by practitioners and by the fiscal, as his English *confrère* does in respect of the coroner. Such a return would be very valuable, and I would respectfully urge upon that official the advisability of introducing such a table at an early date, as he alone has the data at his command.

Whenever the fiscal holds an enquiry, he is bound by Section 40 of the original Registration Act to inform the registrar of its result. The Act, however, does not specify any limit of time within which this report shall be made. There can be no doubt as to the advisability of expedition in this matter; and it is satisfactory to know that matters have much improved in this direction during the last ten years, although, even yet, intervals as long as from *six* to *twenty-seven* months are permitted to elapse between the date of the death and the receipt of the report by the registrar. This is to be deprecated. I have no hesitation in saying that, so far as reduction of the number of "uncertified" deaths is concerned, the enquiry of the procurator-fiscal is not comparable in efficiency with the inquest of the coroner; and probably the reasons for this are—first, that the coroner begins and ends his enquiry in the ascertainment of the cause of death, whereas the fiscal is, as I have pointed out, less concerned in knowing the *cause* of death as in knowing whether or not anyone is *culpable*; and second, from the insufficiency of means at the disposal of the fiscal.

Having demonstrated that the present machinery in Scotland overtakes its work with less efficiency than the English—at least, that it fails to account for the causes of the highest

possible percentage of deaths—the next prominent question that demands an answer is, Does the present machinery require remodelling, reconstruction, or is there new machinery required?

That some change is necessary is obvious to every one interested in the verity of statistical facts, and who, at the same time, believes that it is a prime duty of the State to know the cause of the death of every unit of population within its borders and under its protection. Doubtless it may be argued by some that sufficient is known of the causes of death of those whose deaths are returned as “uncertified” to prevent all feeling of anxiety about secret crime. That, however, in my opinion, cannot be conceded. But granting, for the sake of argument, that the possibilities for secret crime do not exist in the four thousand five hundred odd deaths that occurred in 1890, or in any other number in any other year, it appears to me that the State, by its public health legislation, both recent and more remote, has created a greater necessity than ever for accurate statistical returns, and in those respecting the causes of death not less than in any other.

The State demands that medical officers of health shall give returns showing the relative healthfulness of areas by their death-rates; but, while it makes this demand, it has not afforded, in Scotland, that body of officials the opportunity, *as a right*, of obtaining the requisite information from the registrars. This state of matters cannot for a moment be defended. These officials should be placed in such a position that every information required by them of the registrars should be at their disposal. This being conceded, the next point we would urge is, that the information should be worth the having, and that it should be as complete as possible. It is perfectly true that the bulk of the returns are available for statistical purposes, but it is equally true that there exists in Scotland a percentage of cases, more than double that in England, which is utterly valueless to the public health statistician. If the State desires the highest value to be placed upon the accuracy of such returns, it ought to see that the data from which the returns are made are calculable for the purpose.

In short, it is in the fact that nearly 6 per cent of the total deaths in Scotland are unclassifiable that the public health statistician has a direct interest in the completeness and efficiency of the machinery for the registration and certification of deaths; and the question as between remodelling or

reconstructing the present, or creating new, machinery toward this end, is worthy of serious consideration.

Starting, then, from the view we hold, that the machinery, as at present in operation, fails to overtake its work, let us consider whether this is due to improper or inadequate use, or to inherent defects.

There are some who hold the view that the present machinery fails from being inadequately used, and who believe that by remedying its faults it would meet the case. Others, again, hold equally strongly the view that there are in it such inherent defects as will ever prevent its efficient action. The former think that if every case of death which was not medically certified came under the purview of the fiscal, and if, in those cases which could not be certified by a mere external examination of the body, more frequent and systematic *post-mortem* examination were ordered, the whole difficulty would be solved.

Under such circumstances the fiscal would require to start not solely from the point of view of responsibility in his enquiry, but from the point of view of the *cause* of death, just as the coroner does in England. If this mode could be thoroughly carried out, matters would be much improved.

Those who consider that there are inherent defects in the machinery believe that nothing short of reconstruction, or, indeed, the creation of new machinery, would solve the problem.

The witnesses from Scotland who gave evidence before the Select Committee of the House of Commons were all agreed that the enquiry of the fiscal, as presently conducted, was not what it might be; and, as some believed and stated, was not what it ought to be. So long as the question of *culpa* is the be-all and end-all of that official's enquiry, and so long as his attention is directed to that as the principal factor in the enquiry, the results are bound to be unsatisfactory, because to him the precise cause of death was a matter of little moment, so long as no one was blameable. The statistician cannot but deem this as very unsatisfactory, and as requiring remedy; but from the point of view of the fiscal, it is the only workable view.

Some are inclined to the belief that the enquiry of the fiscal, as presently regulated, has reached its high-water mark of efficiency, and that we can expect nothing more from it.

Personally, I hold the opinion that the present machinery cannot cope with the problem we are now considering, and I desire, for the purpose of evoking discussion, to put down the views I had the honour of laying before the Select Committee.

It seems to me that the time is now ripe for the establishment of a Department of State **Medicine**—a Department which would deal with such questions as the efficient registration and certification of death, questions of public health, and medico-legal questions. I do not necessarily mean a Government Department, although there is absolutely no reason in Scotland why this should not be easily formulated, since the Secretary of State for Scotland already takes cognisance of such questions.

As each Local Authority or County Council has already the supervision and charge of the public health department, so, it seems to me, it should have the direct supervision and charge of the registration department. By such means all difficulty in obtaining statistical returns would be overcome, all present friction would cease. Not only so, but each County Council would have the charge of looking after all the "uncertified" deaths occurring within its area. This is not a new view. The Royal Sanitary Commission of 1869 laid it down as part of its remedial scheme, that all "uncertified" deaths should be dealt with by the public health department of each community. This view has found favour in many quarters. At present, each public health office must needs hold very intimate relations with that of the registrar, and each public health office spends annually considerable sums to obtain the requisite statistical information.

Each public health authority ought to be as much interested in the causes of deaths of its community as in the causes which affect the health of its indwellers, and there seems to be no very good reason why the former should not fall within its province, and that the latter should.

When the public health and registration departments were thus under the control of one body, it would be the duty of the controlling body to enquire into the cause of every death not certified by a practitioner. That might mean the appointment of new officials, whose duty it would be to make enquiry into every case, whether by *post-mortem* examinations or otherwise. The results of such enquiries would be intimated to the registrar, and in this way all "uncertified" deaths would cease to exist. Should anything of a criminal character emerge in the course of the enquiry, it would be the duty of the officer appointed to forthwith intimate the fact to the fiscal, and this officer would be a valuable witness in the case.

If there is one question which is more unanimously agreed upon than any other in the medical profession in this connection, it is that the time has now come when that profession

should be remunerated for its service to the State in the certification of deaths.

For nearly forty years the profession, in Scotland, has been doing the service gratuitously. It is time it should now cease. The certification of the cause of death is a responsible duty which every practitioner must feel, and it is reasonable that the profession should demand remuneration for this responsible service.

The local authority of each community under the Notification of Infectious Diseases Act is authorised to pay to the medical profession a fee for the purposes of that Act; there is no good reason why, if the scheme proposed were carried out, a fee should not be paid for every certificate of death to the qualified certifier, from the same source—viz., the rates or other public funds.

The chief objection to this would be the additional burden upon the ratepayers. Doubtless there would be additional expense. But every community would receive a *quid pro quo*; the money would be equally well spent and well earned.

The question as to the respective advantages and drawbacks of an open enquiry as in England by the coroner, or a secret enquiry as in Scotland by the procurator-fiscal is also a fitting one to be discussed here. Briefly, it may be stated that each method, as presently exercised, has its objections. Let me confine myself to those ascertained against the Scottish method.

In the first place, the *secrecy* of the fiscal's enquiry has no educative or deterrent effect on that class of the community within which it is generally found operating. Take, for instance, the case of children found asphyxiated in bed beside their parents—parents, too, who have gone to bed in an intoxicated condition. It is but too true that hundreds of such cases occur annually in Scotland, that probably an enquiry is held in every one of them, and that very few prosecutions result. This latter fact arises not because of any lack of zeal in the interests of justice on the part of the fiscal, but from the state of law. While the "moral" circumstances of such cases point to deaths in the infants from "overlying," "legal" guilt is difficult to prove. Take, again, the not inconsiderable number of cases of persons who are permitted to die without any effort made by the friends to call in medical assistance. The question of responsibility has not been tried in Scotland lately, but there is responsibility somewhere, surely. If it be the common law that a Shaker father is liable to prosecution for neglecting to summon medical aid

to his dying child, from the want of which the death may be accelerated or directly due, we fail to see any good reason why it should not operate more forcibly in similar circumstances, but where religious scruples do not exist. If it be an offence against the law to neglect children during their lifetime so that they suffer physical discomfort, surely it ought to be an offence to aid them to die. Death, as every one knows, may be equally accomplished by *omission* as by *commission*.

Prosecution apart, however, I hold the view that nothing short of an *open* enquiry will tend to reduce these two classes of death. It would act as a wholesome deterrent, it would prove of undoubted educative value, because the persons involved would be subjected to considerable trouble in the course of the enquiry, than which nothing more forcibly appeals to them. At present, under the *secret* or non-public mode of enquiry, nothing is done, nobody is reprimanded, the lamp of publicity sheds no light upon them, and in consequence they occur as frequently as ever. I do not here desire to be understood as approving of the more modern sensational form of the coroner's inquest, but I give my adherence to an open form of enquiry.

It seems to me that the time has now matured when every *still-birth* should be registered, when no "still-born" child should be interred except on an extract from the registrar, after due certification, stating the cause of the still-birth, and when a separate certificate-form should be employed for the purpose, bearing on its face the legal definition of the term "still-born." In this way dubious cases would be detected where suspicion was aroused. This course is adopted in America, and might well be followed here, since its adoption would involve but little extra trouble.

The following is the remedial scheme for Scotland, which would meet the case, and I set it down in the form of a series of propositions:—

I. The passing of a new Registration Act for Scotland, in which it would be enacted—

1. That the maximum limit of time within which registration of a death should be made be *three days* (or *five days* if that be deemed too short).

2. That the informant of the death should be the instrument of conveying the medical certificate of death to the registrar, which certificate the medical attendant of the deceased person would be bound to hand over to the legal informant of the death.

3. That the qualified certifier of each death should receive the sum of two shillings and sixpence for the State service so rendered.

4. That the registration department of each district should be under the direct control of the Local Authority or County Council of each district, subject to the provisions of the Act and to regulations laid down by the said Local Authority or County Council, and approved by the Secretary of State for Scotland, in order to secure uniformity.

5. That in every case where a medical certificate of the cause of death is not forthcoming within the aforesaid maximum period, and before the interment of the body, it should be the duty of the registrar to forthwith report the matter to the Local Authority, who, by its officers (preferably a medical officer in the health department, or a medical man specially appointed for the purpose), should make an enquiry into the cause of death by *post-mortem* examination if necessary, and should forthwith report the result to the registrar by certificate. Should anything in the course of the enquiry suggest culpability, that the matter be forthwith intimated to the fiscal in the interests of justice.

6. That all "still-births" should be registered, and the cause of the "still-birth" certified; and that the mode of registration should be a double entry, as a birth and as a death.

7. That all death-certificate schedules be numbered; that on issue of books of such forms the numbers therein contained, and the name of the medical persons to whom issued, be noted by the registrars; and that each qualified practitioner within each district should register his signature at the office of the registrar.

Note.—Since the foregoing paper was written, the Select Committee of the House of Commons has issued its report. It is satisfactory to note that several of the points of reform suggested in the paper have been given effect to in that report. They are as follows, briefly summarised:—

1. That no death should be registered without production of a certificate of the cause of death signed by a medical practitioner, or a procurator-fiscal, or a coroner.

2. That in each sanitary district a registered medical practitioner should be appointed as public medical certifier of the cause of death, in cases in which a certificate from a medical practitioner in attendance is not forthcoming.

3. That medical practitioners should be paid the sum of two shillings and sixpence out of the public funds, for each certificate stating the cause of death.

4. That still-births which have reached the stage of development of seven months should be registered upon the certificate of a registered medical practitioner, and that it should not be permitted to bury or otherwise dispose of the still-birth until an order for burial has been issued by the registrar.

APPENDIX.

“UNCERTIFIED” DEATHS IN SCOTLAND AND ENGLAND.

TABLE I.—COUNTIES OF SCOTLAND.

COUNTIES.	YEAR 1881.	YEAR 1890.
Shetland,	69·9	53·0
Orkney,	28·6	23·3
Caithness,	15·4	12·0
Sutherland,	54·4	35·4
Ross and Cromarty,	47·4	39·8
Inverness,	38·4	34·8
Nairn,	16·8	3·5
Kincardine,	10·0	3·1
Forfar,	6·4	3·3
Perth,	12·6	6·1
Fife,	14·3	5·7
Kinross,	15·4	10·5
Clackmannan,	8·5	4·4
Stirling,	9·2	3·1
Elgin,	20·3	8·6
Banff,	6·6	4·1
Aberdeen,	7·2	2·9
Renfrew,	8·6	3·9
Lanark,	7·8	2·6
Edinburgh,	8·9	5·6
Berwick,	4·0	1·9
Selkirk,	1·8	1·1
Dumfries,	8·4	3·9
Dunbarton,	5·9	4·2
Argyll,	35·1	23·4
Bute,	9·3	3·8
Ayr,	5·1	1·7
Linlithgow,	6·4	4·3
Haddington,	9·7	6·7
Peebles,	5·1	3·0
Roxburgh,	4·6	1·0
Kirkcudbright,	9·4	5·2
Wigtown,	13·0	4·8

TABLE II.—PRINCIPAL TOWNS IN SCOTLAND.

TOWNS.	YEAR 1881.	YEAR 1890.
Glasgow,	9·2	3·0
Dundee,	5·6	2·8
Greenock,	10·7	5·0
Paisley,	7·1	3·3
Kilmarnock,	1·7	1·8
Edinburgh,	10·2	7·6
Aberdeen,	3·1	1·0
Leith,	10·8	2·8
Perth,	5·0	1·9
Glasgow (Landward and Suburbs), .	4·8	1·1

TABLE III.—GROUPS OF DISTRICTS.

DISTRICTS.	YEAR 1881.	YEAR 1890.
Principal Town Districts,	7·8	3·3
Large " " 	7·3	3·5
Small " " 	7·1	3·5
Mainland Rural " 	7·0	9·5
Insular " " 	52·5	47·1

TABLE IV.—"UNCERTIFIED" DEATHS IN ENGLAND IN 1890.

Total Deaths,	=	562,248	
Certified by Practitioners,	=	514,720	= 91·6 per cent.
" Coroners,	=	31,581	= 5·6 "
Not Certified,	=	15,947	= 2·8 "
Percentage Proportion of "Uncertified" Deaths in Various Places (<i>Lowest</i>)—			
Extra-Metropolitan Sussex,	=	0·6	per cent.
London and Wiltshire,	=	0·9	"
Extra-Metropolitan Surrey,	=	1·0	"
Percentage Proportion of "Uncertified" Deaths in Various Places (<i>Highest</i>)—			
Derbyshire and Monmouthshire,	=	4·1	per cent.
Durham,	=	4·7	"
Herefordshire,	=	5·0	"
South Wales,	=	5·5	"
Huntingdonshire,	=	6·0	"
North Wales,	=	6·4	"

TABLE V.—“UNCERTIFIED” DEATHS IN SCOTLAND IN 1890.

Total Deaths,	=	79,004		
Certified (by Practitioners and Pro- curator-Fiscals),	=	74,435	=	94·2 per cent.
Uncertified,	=	4,569	=	5·8 „

TABLE VI.—“UNCERTIFIED” DEATHS IN PRINCIPAL TOWNS
OF SCOTLAND IN 1890.

Total Deaths,	=	34,085		
Certified (as before),	=	32,908	=	96·55 per cent.
Uncertified,	=	1,177	=	3·45 „

CONGENITAL DEAFNESS.

BY JAMES KERR LOVE, M.D.

To all who interest themselves in the deaf and dumb, the question as to whether the deafness is congenital or acquired is important. Those who teach the deaf think this question all important. They make their criticism of teaching, in some instances, hinge entirely on the distinction. “Show me,” they say, “a child who was born deaf and who now speaks intelligently, and I will admit the superiority of your methods.” Now, admitting for the moment that congenital and acquired deafness have distinct pathologies, if the result of the diseased process be neither more nor less than the production of “surdisim”—that amount of deafness which prevents the development of speech—what matters it whether the disease happen just before birth, or say at the beginning of the second year of life? Indeed, hearing lost in the second year confers almost no ultimate benefit on those who at that age lose it, and hearing lost in the fourth, fifth, or sixth year is generally followed by muteness. So that it is useless for teachers to draw any line between those congenitally deaf, and those who lose their hearing in early childhood. The latter soon become as dumb as the deaf born. What a teacher should know about his pupil, in addition to the facts about his general intelligence, is the extent of his deafness. If he

can get evidence that the child heard after the second year of life, he will look for the remains of acquired speech and for other effects on the child's intelligence of a prolonged contact with the hearing world.

We in the medical profession believe that congenital and acquired deafness have similar pathologies, that the seat of the deafness is almost always the labyrinth, often only the labyrinth, and hardly even the middle ear alone. If surdism were always congenital its pathology might interest us, but the study of that pathology would hardly lead to any practical results. Congenital deafness is a finished state before we detect it. We cannot mend it. But if any large number of our cases be acquired, the enquiry is all important. Like other recent diseased states, surdism will afford scope for treatment; the disease of which the deafness is the result may be either prevented or cured.

In the medical mind two erroneous impressions about the deaf and dumb have very distinctly fixed themselves. The first is that nearly all deaf-mutes are quite deaf, and the second that nearly all have been born so. Recently* I have shown that the first of these statements should be reversed, and should read—"almost no deaf-mute is quite deaf." In this paper I propose to take up the other question of congenital deafness.

Much difference of opinion has been given about the relative extent of congenital and acquired deafness. This is well illustrated by Scott,† who wrote as follows:—"In a circular issued from the Dublin Institution, it is stated that in 489 deaf children 423 were born so, the remaining 66 losing their hearing after birth from various accidents and diseases. In the thirteenth report of the Hartford (America) Asylum, it is said that out of 279 pupils 117 were born deaf, 135 lost their hearing in infancy, and 28 were doubtful." Statements differing so widely suggest a mistake somewhere.

Hartmann's illustrations on this point‡ are quite as striking:—

"According to the Irish statistics there are 4,010 cases of congenital deaf-dumbness among 4,930 deaf-mutes. In Schmalz's compilation there are 3,665 cases of congenital deafness, and 1,760 of acquired deafness in a total of 5,425. Hartmann states, however, that more recent statistics have resulted in a preponderance of acquired deaf-mutism. These,

* *Archives of Otolaryngology*, vol. xxii, No. 2, 1893.

† *The Deaf and Dumb*, by W. R. Scott (1870), p. 28.

‡ *Deaf-mutism*, translated by Cassels (1881), p. 51.

like the last figures given, are taken from German institutions, and show a total of 2,658 deaf-mutes, with 1,285 congenital and 1,359 acquired cases. Hartmann thinks that, on the whole, we may assume that a little more than one-half of the deaf-mutes have been born deaf, while the other half have acquired the defect by disease.

Writing in 1835, Kramer* says:—"Amongst the causes which act so perniciously on the organ of hearing during early life that the development of the faculty of speech does not take place in the usual way, original defects of conformation stand pre-eminent." In contrast with this statement of Kramer's, I quote from a letter sent me the other day by Dr. C. M. Hobby, the President of the Otological Section of the Pan-American Medical Congress:—"I have been working in the same field for eight or nine years, and have made personal examination of more than 500 mutes in institutions and outside. I go much further than Roosa in claiming that the actually congenital cases are not more than 15 per cent, and I believe that 10 per cent better represents the rate (of course this is for the United States). I know that of those I examined not more than 14 per cent could have been congenital, and the possibility exists that a large portion of these cases acquired deafness during the first six months of life. On the other hand, the more I come in contact with the parents, and where possible, the medical attendants during infancy, the more am I certain that cerebro-spinal fever and possibly allied pathology is the most important factor in producing deafness in the first two years of life."

Roosa,† above referred to, thinks that wherever personal examination by an expert is responsible for the figures, the acquired cases will be found more numerous than the congenital.

The most reliable source of information on this point is the admission schedules used by the institutions for the deaf and dumb. The parents are brought into contact with an intelligent teacher who can get at the truth about the state of the child's hearing during its first year of life with tolerable certainty; then the schedules are filled up by a medical practitioner. Errors sometimes occur, but there is no reason to suppose that they always tend in one direction, or that they are very great in any direction. The point one wants to be sure about is not whether the child ever spoke, but whether

* *The Nature and Treatment of Diseases of the Ear*, translated by James Ridson Bennett.

† *Archives of Otolology*, vol. xiii, p. 170.

he ever heard or not. Now, a mother's word may usually be taken on this point. Long before speech can be expected, mothers have proof of the presence of hearing. During the first six months of life a moderate noise will break a child's sleep, or cause a waking child to start or look round, and if a mother is quite clear about these proofs of the presence of hearing, then mutism is due to disease happening after the age of 6 months, and the deafness is not congenital. I believe the difficulty of ascertaining the presence of hearing in early infancy has been exaggerated. In nearly every case where the parent is closely questioned by an intelligent teacher, or by a doctor, the truth can be ascertained; still a small class of doubtfuls must be recognised, for it will always be found.

A disease may occur during the early months with striking symptoms, and may be supposed to account for an already existing deafness. On the other hand, acquired deafness may come on insidiously during early infancy, and give the impression of its having been born with the child. Hartmann thinks the errors on these two sides of the calculation probably about balance each other. I believe that careful enquiry will reduce the error to a small amount, and make the statistics of our institutions reliable. On this point more than usual care was taken with the cases admitted into the Glasgow Institution in 1892. They were 21 in all; 15 were born hearing, 4 born deaf, and 2 were doubtful. For 1891 the admissions were 36, of whom 17 are said to have been born hearing, 13 born deaf, and 6 are doubtful. These, taken together, make 57 admissions, 32 of which are certainly cases of acquired deafness, 17 of congenital deafness, while the state of 8 at birth is doubtful. I believe these figures represent something like the true proportions of congenital and acquired deafness in Scotland. It gives a percentage of—excluding the doubtful cases—

65·3 cases of acquired deafness ;

34·7 cases of congenital deafness.

After deducting the doubtful cases, there is a total of only 49, and it may be urged that the number is too small to warrant general conclusions. I therefore take the whole of the children I have examined, 175 in all. These include those given above, and the remainder (admitted before 1891) were admitted after filling up the same schedule to the satisfaction of the predecessor of the present principal of the institution. From the total of 175, 20 have to be deducted as doubtful, and 3 are hearing perfectly, leaving 152 about whose state at birth there is tolerable certainty. Of these, 78 were born

hearing and 74 born deaf, represented by percentages of 51·3 and 48·6. This is still in favour of the conclusion that the majority of deaf-mutes are born hearing, but not so much so as the figures drawn from the experience of the past two years. I believe the difference is chiefly accounted for by the fact that the later enquiries were more carefully conducted, and feel sure, with Dr. Hobby, that the more one comes in contact with the parents and medical attendants of the children, the clearer will it become that many of so-called congenital cases are due to disease in early childhood. The conclusions I give are based on the observation of cases drawn almost exclusively from Glasgow and the West of Scotland. When discussing the pathology of acquired deaf-mutism, I have noticed the comparative absence of two diseases which figure largely in deaf-mute statistics of Germany and America. I refer to typhus and cerebro-spinal fever.* The latter disease is common in the first two years of life. Dr. Hobby† points out how commonly it causes deafness, which afterwards is called congenital.

The most extensive observations in connection with any one institution with which I am acquainted have just been published,‡ and are as follows:—In 2,258 cases, assigned causes in the form of diseases after birth are given in 1,343 cases, leaving 912 congenital cases. This gives about 59·5 cases of acquired deafness to 40·5 cases of congenital deafness.

The acquired deafness in the Glasgow Institution may be thus compared with the congenital deafness.

The 78 acquired cases are drawn from 77 families. These families have a total membership of 469 children (an average of $6\frac{6}{16}$). They contain (including brothers and sisters not in the Institution) 82 deaf-mutes. Two cases occur in four families, and in no family do more than two cases occur.

The 74 congenital cases are drawn from 70 families. These have a total of 385 children (an average of $5\frac{1}{2}$). Amongst these 385 children are 109 deaf-mutes. Two cases occur in seventeen families, 3 in three families, 4 in one, and 5 in one family.

In the acquired cases there is 1 deaf-mute child to every 5·7 children born; amongst the congenital, 1 to every 3·5. These figures represent the families and their deaf-mutes at

* *Archives of Otolaryngology*, vol. xxii, No. 3, 1893.

† "Cerebro-Spinal Fever as a Cause of Deafness" (*Trans. Ninth Internat. Med. Congress*, vol. iii).

‡ *History of the Illinois Institution for the Deaf and Dumb, 1838-1893.* (Prepared for the World's Fair.)

the date of admission of the defective child to the Institution. Where more than one child has been admitted, the information is taken from the schedule of the child last admitted. Subsequently children are born into many of these families, but there is no reason to suppose that the ratios would be altered. The figures, if not numerically correct to-day, are relatively so.

A detailed list of families which illustrate the various important points bearing on congenital deafness may precede any general remarks on the subject.

1. In the Turton family—5 in all—there are 3 deaf-mutes, boys, and both father and mother are deaf-mutes.

2. The father and mother of Sinclair are deaf and dumb. There are 3 hearing brothers and sisters.

3. In the Duff family the parents are both deaf-mutes. One boy is totally deaf, and the only other member of the family—a brother—is so deaf that he has just escaped mutism.

There are 75 married deaf-mute couples in Glasgow, and these have about 90 children. Of these 75 couples, 6 have one or more children also deaf and dumb. I have referred to 3 of these already as being in the Institution. The other 3 are as follows :—

4. In the Elder family there are 2 deaf-mute children, and both parents are deaf.

5. The Menzies family is remarkable. As in the others, the parents are deaf-mutes ; 2 children, both girls, are deaf-mutes. One of these girls married a deaf-mute husband, and a deaf child has been born to them. The husband has a deaf-mute brother.

6. In the M'Arthur family father and mother are deaf-mutes, and their only child is deaf and dumb.

So far as can be ascertained, the parents in all these 6 cases are congenital deaf-mutes.

On the other hand—

7. In the Reston family (4) both parents hear, but have 4 deaf-mute children—3 boys and 1 girl.

8. In the Fyfe family there are 10 children—5 deaf and dumb and 5 hearing. The deaf-mutes are not all of one sex. The parents both hear.

9. In the Kerr family (7) the parents hear, but there are 3 deaf-mute children. These belong to both sexes.

10. In the Lambie family both parents hear, but 3 children are deaf and dumb. The family consists of 7 children.

11. In the B. family parents hear, father is slightly deaf, and an ancestor was deaf. There are 3 deaf-mute children.

These are instances of families where several members are congenitally deaf-mutes, but where the parents both hear, and where all consanguinity between the parents is denied.

Outside the Institution I am able to add the following instance in the Glasgow district:—

12. In the D. family—8 in all—there are 6 deaf-mutes, 1 imbecile, and 1 healthy child. The parents hear and are not related.

13. Joseph Swan, Kilmarnock, was born deaf. He had healthy parents who heard and spoke. His mother died. His father married again, and the second wife had a deaf-mute child.

14. Another case, this time drawn from the Institution, shows how Case 13 may have come about. In the Dick family there are 2 deaf-mute brothers, both born so; there are 5 hearing brothers and sisters; both parents hear, but the mother's father and 3 brothers were deaf and dumb.

15. Martha Douglas is said to have lost hearing by tubercular disease of the ear at 6 months. I have classed her as an acquired case, but a slight doubt is thrown on this by the note that two grand uncles had each a child deaf and dumb.

16. Wm. Turnbull—born deaf, but with hearing parents. Half brother and half sister of mother are deaf-mutes.

17. Annie Kerr has 7 brothers and sisters, all of whom hear. Her parents hear, but she has a deaf-mute cousin.

18. Maggie Ralston has 3 brothers and sisters who hear; her parents hear, but she has a deaf-mute cousin in the Institution; her state at birth is described as doubtful.

19. Donald Currie has 7 brothers and sisters, all of whom hear; the parents hear; one child now dead was deaf-mute, and a cousin of the boy's mother was born deaf.

20. John M'Leod, born deaf, and with 1 deaf and dumb brother in a family of 6 in all. Father and mother full cousins.

21. Wm. M'Murdo, probably born deaf, with 3 others in the family who all hear. Father and mother cousins.

22. Geo. Harvey, born deaf, with 1 brother with very defective hearing. Father's great grandmother was great great grandmother to boy's mother.

23. Wm. Potter, born hearing, having lost hearing at 8 years from measles. Father and mother cousins.

24. In the G. family, 2 children, a brother and sister, in a family of 6 are deaf-mutes. Both are called acquired cases, 1 due to constitutional disease, the other to hydrocephalus. I

refer to this as a case of multiple deafness, due probably to syphilis, and likely to give rise in the lay mind to an impression that the cases are congenital.

In 1835 Kramer * stated that no case has become known in which deaf-mute parents have produced deaf-mute children. Instances have been supplied of this direct heredity by various writers since Kramer's time. Cases 1 to 6 in my list are all instances of congenital deafness occurring in families where both parents are deaf-mutes. These parents have, in all the cases, been born with the defect. In 4 of the 6 families the cases of deafness are multiple; in 1 the only child in the family is a deaf-mute, and in only 1 family there is 1 deaf-mute (amongst 4 children). No stronger proof of the direct heredity of deafness could be adduced.

Other cases suggesting heredity are those numbered 7 to 13. In these families there are 41 children, 26 of whom are deaf-mute and 1 imbecile, or over 63 per cent of defective children. In every case the parents hear and speak. A full history of the collateral branches of these families can seldom be got. If we had it, the trail of the tendency might be detected, and would point to the fact that there are not instances of an isolated outburst in the family history. Facts about a tendency like this are often deliberately suppressed. Case 13 shows how an apparently healthy father may transmit a defect from which he does not suffer even when his children come by different mothers. Cases 14 to 19 show indirect heredity; the parents hear, but instances of the defect are known in collateral branches of the family.

The intermarriage of blood relations has been supposed to cause deafness. The list of cases in the Glasgow Institution does not warrant the formation of any theory on this point. Only 4 cases of the marriage of cousins are noted at all, and in 1 the deafness in the child occurred at the age of 8 years from measles. In the other 3 the offspring was born deaf. In many instances, the consanguinity is not confessed. The statistics of the Illinois Institution (2,255 cases) shows that 112 of the pupils are the offspring of parents of consanguineous origin:—

79	children of first cousins.
12	„ second cousins.
11	„ third cousins.
8	„ fourth cousins.
1	grandchild of first cousins.
1	child of uncle and niece.

* *The Nature and Treatment of Diseases of the Ear.*

Illustrations are not wanting suggesting a connection between consanguinity and deafness. A good one is given by Moos.* "From the same family there are descended 3 deaf and dumb children in the second generation. The grandfather was married twice—in the first marriage to a niece—in the second he was not related to his wife. From the first marriage descended 2 sons and 1 daughter, from the second 1 son and 2 daughters. Except that 1 of these daughters has a polypus in the ear, neither of the children of the second marriage nor their children (9 in all) have any disease of the ear. On the other hand, 3 deaf-mutes are found among the 13 grandchildren of the first marriage, and of these 3, 1 had a congenital malformation of the right ear."

Another case is given by Falke.† "Consanguineous marriages were contracted three times in the same family before deaf-mutism asserted itself in a frightful manner. A married couple, among whose relatives neither deaf-mutism nor any other hereditary disease could be traced, had 6 deaf-mute children. The parents were strong and healthy, and were 26 and 21 years of age respectively when married. It was ascertained that they were cousins; that the grand-parents and great-grandparents were also cousins."

On the other hand, the case of Da Souza quoted by Hartmann points in the opposite direction. "In 1849, at Widah, in the kingdom of Dahomey, a Portuguese landed proprietor, Da Souza by name, well known to all captains visiting the west coast of Africa, died. This man, being in his time an important personage in that country, had made a large fortune in the slave trade. At his death he left behind him a host of children, the fruits of his harem, containing 400 wives. The Government of the Kings of Dahomey suspicious of, and hostile to the introduction of a mongrel population, confined this numerous offspring in an enclosed space under the supervision of one of Da Souza's sons. Despised by the natives, and strictly guarded, these Mestizos could only propagate by intermixing among themselves. In 1863 there were already among them children of the third generation. The colour of the skin of the latter was already deep black, although some of them still bore plainly the features of their European ancestor. In spite of this intermixing of the family, defying every moral and conventional law, there were amongst this offspring neither deaf-mutes, blind, cretins, nor ill-developed individuals. How-

* "Ætiology—Results of examination of 40 cases of congenital deafness" (*Archives of Otology*, vol. xi, p. 299).

† Quoted by Hartmann, p. 61.

ever, this human herd is decreasing very much, and may soon become extinct." The case of Da Souza suggests that deaf-mutism is not necessarily a result of consanguinity. Given a family quite free from hereditary deafness, this tendency may not arise from intermarriage of its members.

Alongside the Da Souza case may be put Lord Polwarth's famous herd of sheep. Into this flock no new stock has been imported since its formation. In-breeding has been persistently carried out. The result is that not only has the flock come to be marked by special characters, but that when crossed with other varieties these special characters are imprinted on the offspring in a far higher degree than where in-breeding has not been practised. Indeed, the special characters of the Polwarth flock are said in many cases to be exaggerated rather than diminished by the crossing. That parental consanguinity has special effects on offspring need not be doubted. That it emphasises already existing defects is also quite clear, and in this way many cases of multiple deafness in families may be accounted for. That it can create or initiate a defect such as deafness has not been clearly proved.

Mr. Graham Bell * gives his opinion thus:—"So far as my researches have gone, I have given considerable attention to the subject, and I can see no proof—at least, we have no statistics that undeniably prove that a consanguineous marriage is a cause of deafness; but I do see abundant proof that a consanguineous marriage occurring in a family in which there is already deafness increases the deafness in the offspring; it is simply a case of selection; the family peculiarities, whatever they are, are increased." He also discusses the question of the intermarriage of toto-congenital deaf-mutes, and suggests the production of a deaf variety of the human race from the cause. His reasoning is as follows:—"† That large numbers of the congenitally deaf shall marry one another, and that their congenitally deaf children, if they have any, shall again marry congenitally deaf, and that their congenitally deaf children, if they have any, shall again marry congenitally deaf, and so on; that that alone will result in an increasing proportion of deaf offspring in each succeeding generation, and ultimately, after a certain length of time, which we cannot calculate at the present time, a true breed of the deaf will be formed."

Mr. Bell thinks these conditions are being fulfilled. He cites the case of the deaf-mutes who left the Illinois Institution, "272 of whom married deaf-mutes, and 21 hearing

* *Royal Commissioners' Report on the Blind, Deaf, and Dumb*, p. 51.

† *Ibid.*, pp. 49, 50.

persons. Only 16 of all of these have deaf-mute children, but the absolute number is, of course, not so important as the relative number." From an equal number of marriages of hearing persons, according to Mr. Bell's calculation, there should not have been one deaf child. It has been shown, in earlier part of this paper, that the deaf-mute offspring born to congenital deaf-mutes who have married is as high in Scotland as in America, and doubtless the same process of accentuation of the defect is being carried out.

On the general question as to the probability or otherwise of deaf persons having deaf offspring, Mr. Bell says the general result is simply this:—"With one parent who is congenitally deaf, one-tenth of the children are deaf; and with both parents congenitally deaf, one-third are born deaf. . . ."

"It is quite true that, up to the present time, the majority of the children of deaf-mutes can hear; but the proportion of deaf offspring of deaf-mutes is enormously greater than the proportion of deaf offspring in the community at large. Now, these children are going to have a larger proportion of deaf offspring than their parents had, if they marry deaf-mutes, and 95 per cent of those who marry are going to marry deaf-mutes. That is again the point—it is the continuous selection from generation to generation."

The consideration of this subject by the Royal Commission gave rise to the following recommendation:—"We think that the intermarriage of the congenital deaf should be strongly discouraged, as well as the intermarriage of blood relations, especially where any hereditary tendency to deaf-mutism prevails in the family."

Other circumstances, such as unfavourable social surroundings, dipsomania, &c., have been supposed to cause deaf-mutism. There is no proof, however, that these have any specific connection with the defect.

SOME CASES OF SPINA BIFIDA WITH OTHER DEFORMITIES.

By J. A. WILSON, M.D., SPRINGBURN.

IN the *Glasgow Medical Journal* for October, 1891, I related some cases of congenital talipes, and other deformities of the extremities of a similar nature, in which the etiology of the deformities seemed to own a relationship to the environ-

* *Report*, page 91, sec. 26.

ment of the foetus—viz., to a probable scantiness of liquor amnii, and intra-uterine compression or restraint, operating early in the period of intra-uterine gestation. Congenital talipes and spina bifida are frequently found in the same case. Of course, in the large proportion of cases of congenital talipes, spina bifida does not exist, but where there is spina bifida there is often talipes. The conditions associated with the production or the existence of spina bifida are such as to cause a great liability to club-foot and other deformities of a similar nature.

Spina bifida also shows a relationship to chronic hydrocephalus, for the cure of the former sometimes ends in the production of the latter. It may also be observed that hydrocephalus is one of the commonest of intra-uterine diseases; and, lastly, children are sometimes born with hydrocephalus, spina bifida, and club-foot combined. These facts suggest that these relationships may not be accidental.

CASE I.—Mrs. T., a healthy-looking woman, who had already given birth to four healthy children, was confined on 6th February, 1892. The labour was normal, but the child (a female) had a spina bifida situated over the lumbar region. The tumour was about the size of the half of an orange, and was covered at the sides by healthy skin, while the central part of the covering was a thin transparent membrane, thrown slightly into folds, and of this the lower part was ulcerated and leeting. The finger could feel the edges of the everted laminae.

My attention was drawn to the condition of the legs and feet. When undisturbed, the child lay with its thighs drawn up, the legs crossing each other beyond the knees, and the soles of the feet were applied to the convexities of the backs of the thighs. There was no rigidity in the attitude, and the feet were not deformed, but the ankle joints were somewhat loose, allowing the feet to be easily turned inwards, and the soles to be placed in apposition. The child seldom moved the legs, and this gave rise to a suspicion of some degree of paralysis. The sphincter ani was paralysed. It did not grip or resist the passage of the finger, and the contents of the rectum were constantly escaping, and subsequently caused severe excoriation of the surrounding integument.

The attitude of the legs and feet is one likely to have been produced by intra-uterine pressure, but at the time of the confinement there was a considerable amount of liquor

amni. The history of her pregnancy is uneventful, but she mentions that she fell when in the fourth month. The tumour was dusted over with iodoform and oxide of zinc powder. On 12th February I introduced a hypodermic needle, passing it through the healthy skin at the side of the tumour, but as the fluid seemed too viscid to escape through the needle, it was withdrawn, and about two drachms of the fluid allowed to escape through the puncture, and then half a drachm of Morton's fluid was injected.

On 16th February the tumour showed signs of shrinking and puckering on the surface. On 20th February the tumour had become much smaller, and the transparency of the sac had given place to a dull, opaque colouring.

As there had been some oozing through the ulcerated part for some days, this was painted over with collodion and iodoform.

On 27th March the tumour, which had been steadily shrivelling up, was at the sides nearly level with the surface of the back, and it felt firm and semi-solid. About this time (six weeks from the time of the first and only injection) the child's head showed indications of enlarging, suggesting the onset of chronic hydrocephalus. The upper part of the head was enlarging out of proportion to the size of the face, and the bones of the skull were too much apart. The scalp was also affected with a scaly form of eczema. Otherwise the child was developing in a healthy manner.

On 7th April the circumferential measurement above the eyebrows was $16\frac{3}{4}$ inches, and from the junction of the highest part of the auricle with the scalp, over the head to a similar point on the other side, it was $10\frac{3}{4}$ inches. For a few days the child had been vomiting. At times the head seemed fuller than at others, and then it was observed that the spina bifida had filled up slightly again.

On 6th May the head was much larger, and the child was squinting.

The circumferential measurement was $17\frac{1}{4}$ inches, and from ear to ear 11 inches. The tumour, although still very much shrivelled, presented some increased sacculatation at the centre.

A needle was passed into the tumour from the side and withdrawn, and the fluid contents allowed to trickle away for about an hour, when it was sealed up with collodion. This was done to observe what effect it would have on the development of the hydrocephalus. Shortly after this the tumour was tapped again.

On 17th June the circumferential measurement was 18½ inches, and from ear to ear 11 inches. The tumour was somewhat full looking, and threatening to return. It was again punctured, and the fluid allowed to run till several small spoonfuls had escaped. A few days after this the head was a little smaller and the sutures firmer, but the mother remarked that after the tappings the child was feeble and irritable.

About this time the child was vaccinated, and this ran the usual course. A few weeks later the child was taken to America, and on 4th October I was informed that the head was still enlarging, and that the child required nursing night and day, as it was very cross.

A month or two later I was informed that it had died from what was called dysentery, but probably this was just some form of diarrhoea aggravated by the condition of the sphincter.

At the time of death the head was much as it had been, and the tumour was partly refilled.

CASE II.—Mrs. W. gave birth, on 12th January, 1891, to a female child which had a spina bifida, 3½ inches long and 2½ inches broad, situated about the centre of the back. The sac projected about half an inch above the level of the surface of the back, and was covered by a thin, reddish, transparent, and leeting membrane. On each side the edges of the bony arches were felt, and these approximated above and below. The child also presented deformities of the legs. They had evidently been bent up in front of the body while *in utero*. The right one was stiff and straight, and could not be fully extended at the hip-joint, while it could be easily carried up, and brought into contact with the front of the body. The lower leg could be over-extended at the knee, but it could not be flexed, and an effort in this direction failed to get it beyond the straight line. The ankle joint was also somewhat stiff, the heel was unduly prominent, and the arch of the foot raised and rigid, while the toes were distorted and crushed looking.

The left leg was in a similar condition, but not so severely affected, and the foot was in a condition of talipes calcaneus.

There was a fair amount of liquor amnii at birth: yet these deformities are undoubtedly due to position and pressure operating at an early period of utero-gestation. The child lived for a few days.

This woman states that she suffered from unusual abdominal

pain during her pregnancy, that the abdominal enlargement was less than usual, and that she was "not the same shape as formerly."

CASE III.—Mrs. B. was confined for the second time in June, 1893. The presenting part was the breech. A small bag of "waters" was felt, but the total amount of liquor was less than usual. She also said the abdominal enlargement was less than in her former pregnancy. The child was a male. During the progress of the labour it was observed that the legs were bent up in front of the body, with the feet in the neighbourhood of the chin, and the hands between them and the face.

The child had been rolled up in a cramped position, and this attitude was retained after birth. The legs crossed beyond the knees, the left being outermost. The left foot was moulded round the right leg, and retained this set; but it was not rigidly fixed. The right foot was jammed against the arm, and was in a condition of rigid talipes equino-varus. The hip-joints were stiff, and the legs could not be brought down without using considerable force. The knee-joints were even more rigid, and the lower legs were slightly over-extended. The child had little or no neck, and the head, which seemed large, rested immediately on the upper end of the body. The arms were well formed, while the legs were thin. The rolled-up child was strikingly pear-shaped, as if it had been adapted in an unusual manner to the shape of the uterus. There was a spina bifida situated about the centre of the back, measuring over 2 inches long and nearly 2 broad, while it projected backwards three-quarters of an inch. The edges of the laminæ were felt projecting and everted, especially at the lower part. The covering over the lower part was red, raw, and leeting, and over the upper part there was thin skin. The child lived for three days.

These leg deformities resemble those in my cases previously referred to, and are undoubtedly due to conditions of environment, and not to a central cause or nerve lesion.

In the one series they are associated with and related to ordinary club-foot, and in the other to spina bifida.

Chronic hydrocephalus following on the cure of spina bifida is a somewhat common event, and suggests also some relationship. In spina bifida there is not merely a structural defect, there is a small sackful of fluid, which is an excess over the usual amount of cerebro-spinal fluid. There exists

also a disposition for this fluid to go on increasing in amount until the tumour bursts. If this deformity is simply an arrest of development, this excess and continuing increase of fluid would not be expected. In these two affections it is practically the same membrane which is involved, and in such a way as to lead to a progressive exaggeration in the amount of cerebro-spinal fluid.

If spina bifida is something more than a structural defect, is there anything in the frequency of its association with deformities of the feet and legs?

These deformities are the result of mechanical compression, and (judging by their severity and the alteration of the structures) of a compression operating early in the period of utero-gestation. To permit of this there must have been a scarcity of liquor amnii.

The origin of this fluid is probably partly foetal and partly maternal. During the first three months it is probably mostly foetal, and secreted by the surface of the foetus. If this function is modified in some way, causing a deficiency of the liquor amnii, may this suppressed function or impulse not react on the cerebro-spinal system (which owes its origin to the same layer of the blastoderm, and is also endowed with the power of secreting fluid), and produce cerebro-spinal dropsy, or *vice versa*.

ON ENTERIC FEVER AND SOME DISEASES WHICH SIMULATE IT.

By WILLIAM WATSON, M.B., C.M.,

Senior Assistant Medical Officer, City of Glasgow Fever Hospital, Belvidere.

THE early recognition of enteric fever is not infrequently a matter of some difficulty, and apart from this there are many cases where prolonged watching is requisite to exclude other causes of illness with clinical features more or less approaching those of the disease in question. Under certain circumstances of home treatment, it is not possible to continue this observation up to the time when the clinical features point indubitably in one direction or the other, and I purpose reviewing, as at their termination, a number of cases which, at the outset, all displayed symptoms which suggested enteric fever, and led to their admission to Belvidere as such. For this purpose, I have taken 100 consecutive admissions to the

enteric wards during certain months of the present year, with the following result :—

Of these 63 proved to be enteric, while the remaining 37 were other diseases, and the following is a table showing these diseases and the number of deaths.

DISEASE.	Males.	Females.	Total.	Number of Deaths.
1. Pneumonia,	10	8	18	...
2. Phthisis,	2	...	2	...
3. Phthisis and pneumonia,	1	...	1	...
4. Small-pox,	1	...	1	...
5. Bronchitis,	1	1	2	...
6. Perityphlitis,	1	...	1	...
7. Simple diarrhoea,	1	...	1	...
8. Hepatitis,	1	...	1	...
9. Meningitis,	1	2	3	2
10. Rheumatism,	1	...	1	...
11. Tabes mesenterica, . . . .	...	1	1	...
12. Pleurisy with effusion, . . . .	...	1	1	...
13. Broncho-pneumonia, . . . .	...	1	1	...
14. Chronic nephritis, . . . .	...	1	1	1
15. Typhus fever, . . . .	...	1	1	...
16. Hemiplegia, . . . .	...	1	1	1
	20	17	37	4

It will be seen from the above table that *pneumonia* formed by far the largest proportion of these diseases.

Amongst the males it chiefly occurred in young men of intemperate habits who had been much exposed to the influence of the weather in the early part of the year.

Children under 5 years are all admitted to the female wards, and the majority of the pneumonias there were in children, and nearly every one of these apical.

No deaths occurred in the 18 cases.

The treatment was very simple, consisting chiefly of sponging with aromatic acetic acid when the temperature was high, chloral or sulphonal with paraldehyde when there was great restlessness or sleeplessness, and small doses of whisky as a failing pulse seemed to demand it. In only one case was a poultice used, and then it had the desired effect of relieving pain.

The most interesting case of all was that of W. H., æt. 32. On admission the temperature was 102·4°. Complaint was made of headache, sickness, and loss of appetite. Nothing abnormal was detected by physical examination. The tem-

perature continued up at night and normal in the morning. There was no cough, and nothing abnormal could be found in lungs after repeated examinations.

At the end of a fortnight cough developed with rusty expectoration. The left apex was then found to be dull to percussion and R.M. harsh. Severe night sweating began, and he lost flesh rapidly. The temperature never rose much above 102°, and it was generally lower. Expectoration became muco-purulent, and soon all the signs of a cavity were present. He got extremely weak, but after about fourteen days an improvement began. The expectoration lessened, the night sweatings ceased, and cough almost disappeared. In time he was allowed out, and he went on steadily improving for about a week, when cough again began, and his temperature went up.

On examination, the left apex was found to be slightly flattened, percussion dull, R.M. puerile, but no râles present. Right apex dull to percussion, subcrepitant râles heard, and all other signs of consolidation present. Expectoration was extremely profuse and contained much blood and pus, with shreds of lung tissue. Cough very troublesome, preventing sleep, sweatings profuse, and loss of flesh most marked. Appetite, which before had been good, now failed, and all he could take for some days was Valentine's meat-juice and brandy. Small doses of Battley's solution of opium were given to produce sleep and allay cough. In this apex, too, were present undoubted signs of cavity, and while the apex was thus affected the base of the same lung became consolidated and then broke down.

The quantity of expectoration was very great, and contained much blood and purulent matter. But, again, this lessened, the cough went away, the sweating stopped, and he began to gain flesh and strength.

On examination of the chest some time after he was allowed up, the right side had appreciably fallen in, and cyrtometer measurement all round was about 1 inch inside that of left. There was marked tubular breathing, but in no part could a râle be detected.

On the 21st June he sailed for his home in Ireland, well and strong; word since received tells us that he is keeping well, and there has been no return of cough or expectoration.

The other case of *phthisis* was fibroid. When admitted the abdomen was full and tender, but this was due to an abscess in the abdominal wall between the pubis and umbilicus. It contained about 30 oz. of pus, and seemed to have no con-

nection with the peritoneal cavity. During his stay the lung condition improved greatly, and he was dismissed well.

Two of the cases admitted with *meningitis* died in the hospital, while the third died a few days after being removed home.

One case is returned as *hemiplegia*. This patient was admitted on 11th July. She had been in bed since the 3rd, having had at that time what appeared to her friends as a "stroke of the palsy," speech being gone for twenty-four hours. The temperature was 99·2°; pulse, 96; respiration, 30.

Patient's mouth was drawn to the left side. There was marked loss of power in the left arm and leg, and considerable rigidity of muscles, movement of joints causing pain. Abdomen was full and tender, but on using catheter a large quantity of putrid pus was drawn off, and these signs disappeared. A distinct V.S. murmur was present. The tongue was dry, brown, and baked.

On the 14th she became comatose, and next day she died.

Percentage of death in the 37 cases 10·8. The remaining 63 cases were *enteric fever*, and of these 26 were males and 37 females. The mortality in the males was 11·5 per cent, and in the females it was 10·8.

Some of these cases were of great interest, particularly that of M. D., æt. 18. The following is a much condensed note of her case:—

Admitted 10th April, on tenth day of illness. Been delirious for three days. Temperature, 103·8°; pulse, 120; fairly good. Tongue, dry, brown, furred, and fissured. Abdomen distended.

11th April.—Had a slight hæmorrhagic motion last night. Pil. plumb. c. opio given. Tenderness in right iliac fossa. Rose spots present. Lungs full of bronchitic râles, with distinct consolidation and crepitation at left base.

13th April.—Yesterday blood again in motions; 45 oz. of what appeared to be pure blood passed during the afternoon and night. From 1 A.M. this morning eight other hæmorrhagic motions. Quantity could not be estimated, as sheets and bed were soaked. Tannic acid, zinc oxide, and ferri carb. precip. given, as her colour and pulse forbade opium. Iced cloths applied to abdomen, and an ice-water enema was given every two hours. *Later*: for five hours there has been no hæmorrhage. Enemata stopped. She looks very blanched—lips and conjunctivæ quite pale. The temperature fell from 103·4° to 97·2°. Marked gurgling in right iliac fossa.

15th April.—Temperature always about 104° during the

night—this morning 104·2°. Pulse 108, full, bounding, and compressible; expectoration thick, tenacious, muco-purulent, but lungs are clearer to-day. Has had no motions since evening of 13th April. To-day she has been suddenly seized with severe pain 1 inch below and to the left of the umbilicus, the area affected being about 1 inch square. Abdominal wall very thin, and this part appears raised, and palpation causes gurgling. Battley's solution given and cold compresses applied.

18th April.—Seemed much better to-day, but while still in the ward the patient was seized with extreme pain in the old place. It seemed to be agonising, as it kept her screaming. A cold perspiration appeared, the extremities got cold, the pulse seemed to fail altogether, and she commenced vomiting greenish fluid. Stimulant was given, and she was kept as warm as possible. A large dose of Battley was given, and turpentine stupes were applied to the abdomen. She appeared to revive a little soon, but the vomiting and pain continued for some time. Temperature again high.

21st April.—Pain continues to come at intervals, and in spasms. Motions free of blood.

24th April.—Abdomen more natural-looking to-day. Fullness gone. Lungs improving.

5th May.—Abdomen much retracted, but patient progressing satisfactorily. Lungs clearing. Only thing interrupting convalescence is a profuse crop of boils.

25th May.—Temperature has been steadily normal for nineteen nights. Putting on a little flesh, and colour improving. Been on milk only until to-day, but will now be given thin corn flour.

11th June.—Allowed up.

1st July.—Dismissed well.

From the severe pain, the collapse, and the vomiting coming on soon after such extensive hæmorrhage, it would seem that perforation had taken place, happily in this case with a favourable ending.

Another interesting case was that of G. W., 18 years of age, admitted 19th May, on the eleventh day of illness. Temperature, 104·2°. Diarrhœa very bad. Abdomen full. Profuse crop of rose spots. Seems very ill.

25th May.—Lungs full of bronchitic râles; hypostatic congestion of bases. Motions like chopped vegetables, and very foul smelling.

26th May.—Had a hæmorrhage motion last night. Temperature fell from 102·2° to 95° F.; pulse 94, very weak and flickering. Before hæmorrhage it was 120. Cold compresses

applied, and Battley's solution given. Later on, champagne given on account of extreme weakness.

29th May.—Face looks pale and pinched. Pulse improving. Abdomen slightly distended. Bowel coils well seen through walls and, as in the case of M. D., there is a raised area, in this case surrounding the umbilicus. Last night pain was very severe here, and temperature was 102°.

31st May.—Temperature normal since yesterday morning. To-day it is 102·8°. Left parotid gland much swollen and painful. (Belladonna and glycerine with poultices applied).

1st June.—Swelling less to-day. Temperature normal. Pulse good.

On the 28th June she was first allowed food, and on the 9th July she was allowed up. Dismissed well on 2nd August.

The following is a note of this patient's temperature for some days:—

Date.	Day of Illness.	Morning Temp.	Evening Temp.
May 19.	11th	104·2° F.	104·4° F.
" 20.	12th	102·4°	103·6°
" 21.	13th	103·6°	103·6°
" 22.	14th	101·4°	104·4°
" 23.	15th	102·8°	104·2°
" 24.	16th	101·8°	103·0°
" 25.*	17th	99·0°	102·2°
" 26.*	18th	95·0°	95·2°
" 27.	19th	97·8°	4. 97·0° 8. 95·7° 10. 95·4° 12. 96·2°
" 28.†	20th	7. 97·2° 12. 97·2°	6. 100·4° 10. 102·0°
" 29.	21st	99·2°	98·6°
" 30.	22nd	98·8°	98·0°
" 31.‡	23rd	7. 99·2° 10. 100·4° 12. 100·0°	2. 102·8° 10. 103·2° ...
June 1.	24th	2. 103·2° 6. 101·8° 12. 101·0°	2. 100·4° §

* Hæmorrhages. † Pain in abdomen.

‡ Swelling of parotid gland noticed.

§ Subsequently normal.

On the 10th July, L. K. was admitted on her tenth day of illness. There was profuse diarrhœa, the bowels moving every ten minutes. Temperature, 102·4°; pulse, 116, weak and

compressible. Tongue dry, brown, and baked; rose spots present. Stools chopped-vegetable in appearance.

On the 15th she had three hæmorrhages, measuring 80 oz. Much blanched afterwards. Pulse 132, full, and bounding. Abdomen full and tender, and gurgling is elicited. Cold compresses applied, and Battley's solution given. Temperature in this case also fell with the hæmorrhage, but rose again without the obvious causes noted above. She also made a good recovery. Food withheld for almost a month after the temperature became normal, on account of tongue remaining coated.

Amongst the fatal cases in the male ward, J. C. was admitted in practically a moribund condition, and died a few hours after admission.

The other two were brothers, both weakly boys, who died from peritonitis, not caused by perforation, as revealed by *post-mortem* examination.

E. M. was admitted to the female ward on 27th April, evidently suffering from enteric fever, and in addition to this the base of left lung was quite solid. She was ashen and collapsed in appearance when admitted, and died next day.

The next fatal case was one of enteric complicated with double pneumonia. When admitted the whole of her back was an open granulating sore from poultices which had been applied.

On 19th May, Nurse R. was admitted, suffering from enteric fever and bronchitis with consolidation of left apex. Her illness was long and severe. Cough was very troublesome, diarrhœa persistent, and distension often very great. The temperature at end of first week was often over 105°. About the beginning of the fifth week there was a decided change for the better, and her condition became very hopeful. On the thirty-ninth day she seemed to be almost out of danger. Temperature was normal, pulse good, cough almost gone, and general appearance was one of greatly increased strength. One feature was bad—the tongue remained dry, brown, and fissured. On the morning of the forty-second day she seemed better than she had ever been since admission. At mid-day the nurse in charge left her for a few minutes, and on returning found her collapsed and dying. A *post-mortem* examination was not performed, but from the condition of the tongue the chances are that the much diseased bowel had given way on her attempting some change of posture.

In the case of E. G., which also proved fatal, there was most extensive intestinal lesion. The solitary glands and

Peyer's patches were extensively involved and eaten through, and so much riddled were they, and the edges of the ulcers so clean cut, that it seemed as if pellets had been fired into the bowel. Many of the ulcers had perforated. Marked peritonitis was present, and the peritoneal cavity was full of purulent fluid. The disease in this case had also attacked the descending colon near the rectum. It was the only one of the fatal cases where there was any bleeding before death.

The diet in the enteric cases was milk, or milk with beef-tea if no diarrhoea was present. This was continued until the temperature had been fourteen nights normal, provided the tongue were then clean. Constipation was relieved by larger quantities of beef-tea and by enemata. In connection with the latter, in several cases, and at different times in the same cases, it may be mentioned that a rash followed their use. These rashes were blotchy in character and purplish in appearance. They differed from measles rashes in that they wanted the crescentic grouping and raised appearance, while they had not the punctate character nor the universal distribution usually seen in scarlet fever.

With the exception of an occasional lead and opium pill, Battley's solution was almost the only drug used. It acted both in checking diarrhoea and in producing sleep. If given with the latter object only in view, it was seldom there was any difficulty with the bowels if beef-tea were given along with it. Distension usually yielded to enemata of turpentine given with starch mucilage.

During the convalescence of females there was sometimes a sudden and unexpected rise of temperature. Beyond a headache, and perhaps pain in the back, there was nothing to account for it. In one case the temperature rose as high as 105.2° . This fell to normal in a day or two, on the reappearance of menstruation, and convalescence went on uninterruptedly.

Three patients sent in with other diseases contracted enteric fever. This may well be regarded as an argument against the treatment of enteric fever in the wards of a general hospital. In such wards fluids are always standing at the head of the patients' beds, in an atmosphere that must, when cases of enteric fever are present in the ward, contain the germs of that disease derived from the stools of the patients and from the secretions which have dried on the bed-clothes. These germs are liable to be disseminated into the air when disturbed in the process of bed-making and otherwise.

THE ALLEGED INCREASE OF INSANITY AND THE HOSPITAL TREATMENT OF MENTAL DISEASES.

By JOHN CARSWELL, L.R.C.P.E., &c.,

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In the annexed report the question of the alleged increase of insanity is considered from the point of view afforded by the experience of the Barony parish of Glasgow during the last four years. The "Barony" is the most populous parish in Scotland, and it is almost entirely urban ; for these reasons, and also because the policy of the Board of Managers, in relation to the insane poor, has always been generous and forward in the adoption of the best means for securing the comfort and curative treatment of the patients, it may be assumed that the experience of the Barony parish and the conclusions to be drawn therefrom may fairly enough be held to be applicable to the rest of Scotland. All the considerations that influence people in sending their relatives to asylums as pauper lunatics are found in a large urban parish, and so the differences that exist, as between urban and rural districts, and between one rural district and another, are counterbalanced. The erection of well appointed and conveniently situated asylums throughout Scotland by the District Boards of Lunacy has been one of the chief causes in inducing the relatives of insane persons to place them in asylums as pauper lunatics. The Barony parish has received the full effect of that influence, their excellent asylum at Lenzie being suitable as regards comfort, and convenient as regards situation ; further, it was opened for the reception of patients just when public opinion was beginning to move in favour of placing all unusual private and family burdens upon public institutions and public rates.

In view of the fact that the figures relating to the disposal of applications annually made to the inspector of the Barony parish, on behalf of supposed insane persons since 1889 have been carefully recorded, I have endeavoured to indicate the conclusions to be drawn from a review of the statistics, especially in relation to the question of the supposed increase of insanity. Last year I indicated in a general way the results of our investigations, and this year I have reviewed the four years and indicated the results in detail. These results are, briefly, that while the number of applications made to the inspector for the removal to the asylum of

supposed insane persons shows an annual increase, the number of persons actually sent to the asylum shows no appreciable increase; that, of those sent to the asylum, cases of first attacks of insanity compared with recurrent attacks show no tendency to increase; and, that there is no increased prevalence of any of the usual causes of insanity.

When the Barony Parochial Board determined to adopt means for an adequate investigation of all lunacy applications, so as to prevent, if possible, removal to the asylum of cases not specially in need of asylum care and treatment, the fact was kept in view that a certain number of cases would require some form of special care for short periods, and therefore, with the approval of the General Board of Lunacy and the sanction of the Board of Supervision accommodation for such cases was specially set apart in the hospital at Barnhill, under the care of Dr. Core. Twenty-five per cent of the total number of applications this year were treated there, without in any case removal to the asylum becoming necessary. The cases treated in Barnhill, though not certified insane, were as really cases of mental disease as those sent to the asylum, the difference being that they were of a temporary character, and were more manifestly dependant upon physical causes. By adopting this method of dealing with temporary mental disorders, we have really been making an experiment in the hospital treatment of mental diseases; and, although the experiment has been limited in many important directions, yet it has been eminently satisfactory in its results, securing, as it has done, the purpose for which it was instituted, and being suggestive of wider application for securing more important results.

The present system of sending persons suffering from mental diseases to lunatic asylums as the only available institutions for their treatment has many serious disadvantages, the most obvious and not the least important being that curable patients are usually sent there as a last resort, and incurable patients are removed to the asylum to be out of the way of being troublesome to their relatives at home. The curative influences of asylums are, from these and other causes, seriously hampered. The movement presently going on among asylum physicians for the erection of hospital accommodation apart from the chronic blocks in asylums, is a recognition by those engaged in the treatment of the insane of the need that exists for new methods, better adapted to the requirements of patients suffering from mental diseases than those hitherto in use. But it is open to doubt whether the means suggested are sufficient for the purpose in view—namely, the curative and preventive

treatment of mental diseases. These diseases are varied in their essential characters (a fact frequently forgotten when they are grouped under the general term "insanity"), and they have their analogies, and frequently their causes, in disorders of other organs besides the brain; it follows, surely, that skill and experience in the diagnosis and treatment of general diseases should be valuable aids to the successful treatment of states of mental disorder. Asylum life does not afford that experience to the medical officers. Instead, they are immersed in household cares and farm management. To obtain the full benefit of hospital treatment for cases of mental disease, I venture to believe that the hospital and asylum should be separate institutions, and that the hospitals should have a visiting staff of experienced physicians and surgeons. It would be as reasonable to place eye-infirmaries inside the walls of blind asylums and leave the treatment of all the cases (acute eye diseases and total incurable blindness alike) in the hands of one medical superintendent, who, in addition to his medical duties had charge of the entire institution, as it is to adopt a similar proceeding in connection with large asylums for the pauper insane, in view of modern knowledge in regard to nervous and cerebral pathology, and in view likewise of the great importance attaching to pauper lunacy because of the large amount of public money spent on account of it. It is right that recognition should be made of the fact that certain medical superintendents of Royal Asylums have endeavoured to make their asylums assume more of the character of hospitals, and so increase the usefulness of their institutions as curative establishments, by getting their directors to admit curable cases at low rates of board, so as to secure the efficient and early treatment of such cases where the question of cost might prove a hindrance to early treatment. Of course, the question of the cost of treatment does not materially affect those cases which become pauper lunatics, as a cause preventing early treatment, but other considerations quite as potent operate to prevent the early recognition and treatment of mental disorders among the poorer classes. With the view of doing something for the preventive treatment of insanity, St. Thomas's Hospital, London, and certain large asylums have instituted out-patient departments for mental cases, and the results obtained have been satisfactory. We have abundant material in Glasgow for similar efforts, and the need is as great here as elsewhere.

I have only stated the case for the hospital treatment of mental diseases; a discussion of the subject would occupy more space than is now available. Certain facts, however, may suitably be left for reflection. The recovery-rate and

the death-rate in asylums have remained practically unchanged since 1858. The number of recoverable patients in asylums is, on a favourable estimate, not more than 20 per cent of the total number resident; so that, to the extent of four-fifths of the accommodation, asylums are occupied by chronic cases. The public expenditure for the maintenance of 12,844 pauper lunatics in Scotland last year was £251,628.

In view of facts like these, it is not sufficient to be able to say that insanity is not increasing; the problem must be faced—Why is it not decreasing?

Fourth Annual Report on Certification of Lunatics, for Year ended 14th May, 1893. Presented to the Barony Parochial Board.

	" Males.	Females.	Total.	Previous 12 Months.
Certified,	106	93	199	192
Uncertified,	82	69	151	153
Total Applications,	188	162	350	345

"I have the honour to submit the fourth annual report on lunacy applications for the year ending 14th May, 1893. The total number of applications made to the inspector was 350, of which 188 were for males, and 162 for females. 199 cases were found requiring asylum care and treatment, leaving 151 uncertified. Of those not certified, 87 were treated in the special wards at Barnhill Hospital; and the results of treatment there show that 78 were discharged recovered, the period of residence not exceeding one month, 7 died, and 2 remained under treatment at 14th May. Nine cases were first tried in Barnhill, but, not improving, were afterwards removed to the Asylum. Including the 9 removed to the Asylum, the total number treated at Barnhill was 96. Compared with last year, the numbers treated at Barnhill show a decrease this year of nine cases, 105 having been treated last year, and 96 this year. If we consider the total number of cases treated in both establishments during the year, we find that in all 286 were placed under treatment, 199 in the Asylum and 87 in Barnhill, which, compared with last year, during which period 291 were so dealt with, shows a decrease this year of five cases under treatment. While, therefore, the number of applications and the number of cases certified for the Asylum have slightly increased, it is satisfactory to note that the total placed under treatment has slightly decreased. There have been 64 cases this year, compared

with 54 last year, disposed of in a variety of ways other than by becoming chargeable to the parish. Several were treated at home, some showed no evidence of insanity, while others were taken charge of by friends, or taken over uncertified by other parishes. All cases taken over by other parishes, after having been certified here, but before removal to our Asylum, are included in the number of cases certified.

"The number of applications annually made to the inspector on account of mental unsoundness continues to increase. Since 1889-90, the first year upon which we reported regarding lunacy applications, there has been an annual increase in the number of applications—this year the increase being 42 compared with 1889-90, the total number of cases treated also showing an increase.

"The following tabular statement shows the comparison between the two periods 1889-90 and 1892-93 in respect of the total applications, the numbers treated in the Asylum and in Barnhill Hospital, and the number of cases taken over by friends, and other parishes, or treated at home:—

Total applications for year ended		
14th May, 1890,	308	
Total applications for year ended		
14th May, 1893,	350	
	<hr/>	
Increase,		42
		<hr/>
Cases certified Insane, 1890,	187	
Do. do., 1893,	199	
	<hr/>	
Increase,		12
Cases treated in Barnhill Hospital,		
1890,	53	
Cases treated in Barnhill Hospital,		
1893,	87	
	<hr/>	
Increase,		34
		<hr/>
Total increase under treatment,		46
Cases not certified and not treated		
by parish, 1890,	68	
Cases not certified and not treated		
by parish, 1893,	64	
	<hr/>	
Decrease,		4
		<hr/>
Nett increase as above,		42
		<hr/>

“The conclusion to be drawn from these figures is, that the increase in the number of applications is due to an increase in the number of persons requiring some form of special care and treatment, though only to the extent of 12 in 46 actually in need of asylum treatment, the larger number having suffered from mental disturbances of a degree requiring only temporary hospital treatment. How have we met that increase in the number of applications and provided for the increased number of cases requiring special care without adding to the number of certified lunatics, except to an extent equivalent to the increase of population? (1) ‘By a careful scrutiny of applications for relief on account of mental unsoundness, so as to ensure that relief is not given on that ground except when it is necessary in the interest of the lunatic or of the public.’ (*Annual Report of Lunacy Commissioners, 1892*); and (2) by providing suitable hospital treatment for the cases of slight or temporary mental disorder that did not require asylum care and treatment. In this way we have been able to reach the normal level of certifiable insanity occurring in this parish. The results obtained are important in relation to the enquiry into the causes of the alleged increase of lunacy. In view of the constant yearly increase in the number of certified lunatics disclosed by the annual reports of the Commissioners in Lunacy for Scotland, the question is being asked: is insanity on the increase? The Commissioners have expressed their opinion that the increase in the number of certified lunatics annually sent to asylums does not indicate any actual increase in the occurrence of insanity among the community, and, in explanation, they state their opinion that certain more or less removable causes have contributed to this result. The Government grant of 4s. per patient weekly in aid of local rates has been suggested to be one of the chief causes of the increase, acting—it is held—as a direct inducement to Parochial Boards to transfer troublesome and weak-minded old people from the ordinary pauper roll to the lunacy roll. So far as that may have been the case, it has now ceased to be operative in producing further increases, because in the nature of the case any one cause of an incidental nature must reach a limit beyond which it cannot pass, provided the population and the relative occurrence of weak-mindedness remain equal in proportion. It never appeared to me that the Government grant in aid was an appreciable cause of the increase of certified lunacy in this parish, whatever it may have been elsewhere. Other causes, however, have been enumerated by the Commissioners which have been very

effectual in causing the increase of applications on account of alleged insanity in this parish; these are, put briefly, that instead of viewing asylums with suspicion and dislike, the poorer classes now avail themselves of the advantages offered by these institutions more readily than formerly, and that not only because asylums afford the requisite medical skill for the curative treatment of mental disorders, but also because the relatives of the patients are thereby relieved of the burden of maintaining at home troublesome and usually non-wage earning dependents. The experience of this parish is that these causes alone sufficiently explain the increase in the number of patients we have had to treat, although, as the figures show, there has been no actual increase of certified lunacy beyond what is caused by the increase of the population. The following tabular statement brings out two important points relating to the increase in the number of applications annually made to the inspector, and to the number of those annually certified:—

Year ended 14th May.	Population.	Total Applications.	Total certified insane.	Proportion certified insane per 100,000 of Population.
1890	301,931	308	187	61·9
1891	309,812	334	186	60·3
1892	314,312	345	192	61·0
1893	318,872	350	199	62·4
Annual Average,	311,232	334·25	191	61·4

“The above table shows—

“I. In respect of *applications*: that the annual increase in the number of applications made to the Inspector for the removal of supposed insane persons shows a tendency to drop to a normal increase in proportion to population. We may therefore hope that, if we are right in assuming that the growth in applications has been caused by the greater willingness on the part of the public to avail themselves of asylum treatment and parochial aid in that connection for relatives suffering from mental disorder, it has now nearly reached its maximum limit.

“II. In respect to the *number of cases certified insane*, it is evident that in relation to the population the amount of certifiable insanity has remained practically uniform during these four years, and that there has therefore been no increase of insanity. There are always a considerable number of cases sent to the asylum each year suffering from recurrent attacks of insanity, and it might be supposed that if the recurrent cases were deducted from the total number of cases certified,

the result would show an increase in the number of occurring cases each year. During the four years under review the average number of cases in which there had been previous attacks of insanity was 58, against 132 in which there was no history of previous insanity; and the relation between the two classes of cases hardly varied from year to year. An investigation of the causes of insanity equally fails to indicate any growth in occurring insanity due to increased prevalence of any of the usual causes of insanity. In neither of these directions, therefore, do we find any reason for modifying the conclusion indicated by the figures we are now dealing with—viz., that there is really no increase of insanity in the community.

“It is right, however, to point out that the amount of certifiable insanity has been kept within what may be considered to be its normal limits by the employment of facilities for a special scrutiny of all cases reported to the inspector, and for the temporary hospital treatment of suitable cases—facilities which were not available until four years ago, and without which there would have been an important addition to the number of persons annually sent to the asylum. What is certifiable insanity? is a question the answer to which varies with the facilities at the command of medical men for the care of cases requiring special supervision, and with the condition of life of the patients, and the willingness of friends to undertake the care and responsibility involved. Medical opinion, therefore, as to what may be considered to be certifiable mental unsoundness must be regulated by the fulfilment of these conditions. When it is remembered that during four years 325 cases of various forms of nervous and mental disorders—such as delirium tremens, hysteria, delirium due to physical causes, and such like, being an annual average of 81 cases—have been treated in the special wards at Barnhill Hospital, without in any case removal to the asylum becoming necessary, it will be apparent how valuable this provision has been alike to the medical officers in disposing of the cases, to the patients, and to the parish in preventing a large addition to the number of patients sent to the asylum.

“To summarise the foregoing, it appears—

“1. That the increased pressure upon the Parochial Board, on account of alleged insanity, is due to the greater readiness of the public to avail themselves of the provisions of the Poor Law in respect of mental disorders.

“2. That the increase caused in this way has been entirely

TABLE SHOWING CAUSES OF INSANITY IN THE CASES CERTIFIED.

I. INHERENT CAUSES.				Males.	Females.	Total.	Previous Twelve Months.
Relapse from previous attack,	6	6	12	4			
Heredity (without known exciting cause),	14	7	21	15			
Hereditary neurosis do. do.,	2	1	3	3			
Exacerbation of existing insanity (being boarded-out cases returned to Asylum, and such cases as may have been discharged from Asylum unrecovered, and have not since recovered), . .	4	5	9	14			
Predisposition from previous attacks (without known exciting cause),	8	6	14	22			
Mental decay (mental weakness in persons over 60 years of age),	1	3	4	5			
Mental failure (mental weakness in persons under 60 years of age, who have had average mental capacity until onset of present attack),	2	1	3	...			
Natural mental weakness (mental weakness in persons who have always been under the average in mental capacity),	2	...	2	4			
Congenital defects,	8	4	12	4			
	47	33	80	71			

II. INCIDENTAL CAUSES.		With Ascertained Predisposition.		Without Known Predisposition.		Total.	Previous Twelve Months.
		Males.	Females.	Males.	Females.		
Mental shock and strain (fear, fright, anxiety, &c.),	3	6	1	1	11	4	
Intemperance (delirium tremens), . . . . .	...	...	4	...	4	8
Intemperance (chronic alcoholism),	2	2	3	3	10	4	
Masturbation,	1	...	2	...	3	...	
Child-birth (puerperal), . . . . .	...	1	...	6	7	8
Climacteric period, . . . . .	...	1	...	12	13	14
Epilepsy,	4	1	2	...	7	5	
General paralysis,	3	...	3	...	6	10	
Religious excitement, . . . . .	...	1	1	...	2	2
Bodily weakness, . . . . .	...	1	1	...	2	3
Uterine disease and irregularities, . . . . .	...	...	...	...	...	2
Organic brain disease,	1	...	5	2	8	12	
Pregnancy, . . . . .	...	...	...	1	1	2
Apoplexy, . . . . .	...	...	...	...	...	1
Injury to head, . . . . .	...	...	3	...	3	4
Febrile condition, . . . . .	...	1	...	1	2	2
Lactation, . . . . .	...	1	...	...	1	1
Phthisis, . . . . .	...	1	1	2	4	...
Gastro-intestinal disease, . . . . .	...	1	...	...	1	...
Uncertain, . . . . .	...	...	19	15	34	39
	14	17	45	43	119	121	
Inherent causes,	47	33	...	...	80	71
Total,	61	50	45	43	199	192	

and adequately met by the methods adopted by this parish, without adding to the number of persons certified insane.

"3. And, consequently, that there has been no increase of certified lunacy in this parish beyond the natural increase caused by growth of the population.

"It is again a pleasure to be able to say that no accident has occurred in the removal of patients, and my thanks are due to Mr. Motion and his assistants for their assistance in visiting and examining the reported cases."

PERSONAL REMINISCENCES OF M. CHARCOT.

By JANE B. HENDERSON, M.D. BRUX.,
L.R.C.P. & S. EDIN., M.P.C.

It is scarcely necessary for me to express the feelings that must have been roused in the minds of all members of the medical profession when they read the sad news that M. Charcot was dead. To those who had the good fortune, at any time, to attend his clinical lectures, and to come within the range of his personal influence, the feeling of loss is intensified, and it is impossible to think of Paris without feeling what a great gap has been made, which it will be quite impossible to fill again. Many teachers there are, and will be, capable of leading into untried paths in search of the true explanation of facts; but few will combine success in investigation with the facility of expression and dramatic power of representing facts which enabled M. Charcot to attract admiring crowds of students from all parts of the world to his weekly lectures at the Salpêtrière.

Last autumn I went to Paris for the first time, and stayed for some months. I had no medical friends there, and was not armed with introductions, but I had a fair knowledge of French, which was, of course, of great advantage to me. My point of observation was simply from among the ranks of the ordinary students, but everything is so beautifully free in Paris that an entire stranger has splendid opportunities of learning from the highest authorities on all subjects. My first business was to study the map of Paris to find out the position of the Salpêtrière, and the best means of getting there. I found that it was about three miles from my lodgings, and could be reached either by tramcar or river steamer, so every Tuesday morning, in rain or sunshine, snow

or frost, I managed to make my way there, to learn as much as I could from the great master.

The Salpêtrière is situated at the extreme east of Paris, a few hundred yards from the river, and across the road from the Jardin des Plantes. It is very unimposing in appearance: the main entrance stands well back from the Boulevard, being separated from it by a small grove of trees, and nothing but the boundary wall and gateway can be seen from the outside. After passing through the porchway, one finds himself in a large garden with flowers and trees. In front is the church with dome and clock, flanked on each side with a row of very ordinary-looking old houses. After passing through an archway under those houses, another large court is reached, surrounded by some more old houses, and wandering about are some old women in cotton dresses, and in various stages of decrepitude. Going on further, another archway is passed, and the next court is found to be occupied with irregular buildings, the first of these to the left being the lecture hall, to which the students are all wending their way. The steep steps inside the door lead up to the seats at the back of the hall, which are considerably raised; but about two-thirds of the seats are on the level floor, and M. Charcot's voice was not at all strong, so that the raised seats were too far away to be appreciated, and the majority of the students came as near as possible to the front, even although the view of the platform was apt to be obscured by the heads of those before them. A large platform, not very much raised, occupies the end of the hall, and covering the wall behind it can be seen the only ornament in the room. This is a large and very well executed oil painting representing the courtyard of the Salpêtrière at an early period of the century. The physician walking through has stopped to watch a girl in an hysterical attack, and other patients suffering from insanity in various forms are grouped around in characteristic attitudes. A side door leads from the ante-room to the platform, and through this the various patients who are to form the text for the clinical lecture are carried, and deposited on chairs or behind screens till the time comes for them to be brought forward.

At last, just after the clock struck ten, M. Charcot would enter, accompanied by his assistants and a few specially favoured ones who were honoured with seats on the platform. In regard to his personal appearance, the first thing that struck me was the evident fact that he was getting old. He was not tall, and the round back and drooping shoulders took

off some of his original height. His well-shaped head, covered with white hair, and his features, which were supposed to bear a striking resemblance to those of Napoleon I, are sufficiently well-known to obviate the necessity of any further description. His movements were active, but his gait was the short, quick step so frequently to be noticed in old people. His speech was clear and distinct, but he was troubled with a cough which appeared to prevent him from making any effort to raise his voice, so that those who had not been fortunate enough to get near the front were apt to be disappointed when they could not hear well enough to follow the remarks. M. Charcot had great powers of imitation, and would at times walk across the platform to show the gait characteristic of various nervous disorders, or describe with his hands different forms of choreiform movements, but when he was describing the movements seen in paralysis agitans, the symptoms were so pathetically in harmony with his own appearance that one was tempted to believe that he was himself the patient and not merely the lecturer giving a demonstration.

The subject of the lectures was nervous disease in all its forms, and the diagnosis of hysteria was frequently made in patients, both male and female, and sometimes in mere children. Not much, if any, reference was made to hypnotism, and no exciting demonstrations were given on this point; and I noticed that at the meetings of the Society of Hypnologists M. Charcot was not present. M. Charcot appeared to be very much interested in the subject of peripheral neuritis and alcoholic paralysis; and he freely acknowledged that the earliest description of a case was made by an English observer, and on one occasion he brought in his hand a copy of the *Journal of Mental Science*, and referred to a case of alcoholic ataxy described in it by some one in Manchester (Dr. Dreschfeld, I think). M. Charcot had evident pleasure, and a certain amount of natural pride, when he was able to claim the Salpêtrière as the home of any discovery in pathology, but it appeared to me that he was equally willing to accord the honour of discovery or description to others when he could, and it was noticeable that a reference to paralysis agitans was always coupled with the name of Parkinson, and true chorea with the name of Sydenham, and in speaking of somnambulism a case described by Fraser is quoted amongst others. He did not hesitate to make use of an English expression if he found it more graphically descriptive than any French one; and the expression "high-stepper" was always used to describe the peculiar manner of walking

which accompanies alcoholic neuritis with ankle-drop, while "whipping eggs" described at once the hand movements in a case of hysterical chorea.

The clinical lecture lasted two hours, and, as a rule, six or seven patients were shown and referred to. On one memorable occasion a wonderful group of nine was brought in, being specimens of most varieties of involuntary movement, as will be seen by the following list:—(1) Female, aged 14, suffering from ordinary chorea; (2) male, about 49, with chronic chorea; (3) female, very old, in the last stage of dementia following chorea; (4) female, 16, with rhythmic or hysterical chorea, accompanied by a noise in the throat, and becoming more excited when noticed; (5) male, 30, with choreiform agitation, due to disseminated sclerosis; (6) female, 50, (7) female, 20, both suffering from athetosis, probably due to organic disease or hemiatrophy of the brain; (8) female, 35, with the trembling of Graves' disease; (9) male, 45, with rhythmic agitation, the cause of which is not noted, so possibly the diagnosis was uncertain. It was with truth that M. Charcot concluded by saying—"It is only at the Salpêtrière that we can get such a group of cases together." In referring to Case No. 2, with chronic chorea, it was pointed out that there was a well-marked family history of chorea, coming on about the age of 43. The patient's grandfather and grandmother both had chorea; his mother died at 52, having had chorea since 40; an uncle died at 67, having had chorea since 43. The patient's head began to agitate at 43. He has a brother of 25, who is alcoholic, and one of his own children is "nervous." The other case of chronic chorea had a similar family history.

In describing the history of a case—as, for example, a case of alcoholism—the clinical picture would be rendered most vivid by the minuteness of the details that were mentioned, and one was able to follow in imagination, step by step, the gradual yielding to the temptation which had ended in such a pitiful result. He would tell how the patient, a barber, used to saunter round in the forenoon to have a little chat with his friend at the wood-shed. At the inner end of the wood-shed there was, unfortunately, a little wine-shop, which was only too convenient, and, of course, both had a glass of absinthe, just to give them an appetite, and so on and so on, the visits to the wood-shed becoming gradually more frequent, and the reasons for taking a glass of something multiplying rapidly, till the man was a total wreck.

In cases of alcoholism in females, M. Charcot was of opinion that an admission of the fact of indulgence was not to be

expected, because he believed it almost impossible to get a woman to speak the truth. However, he added, with a little twinkle about his eyes, he excepted from this complete condemnation those women who had come out from the ranks and studied medicine. He hoped that they might be expected to add to their other qualifications the capability of speaking the truth.

The symptoms of alcoholic paralysis were pointed out in detail in the various cases present at the lectures from time to time. They include pain in the feet and tenderness on pressure over muscles, tendons, and nerves, paralysis, especially of the legs, with inability to stand, and ankle-drops. The skin is polished, red, and glistening, and there is some œdema. The knee-jerk may be absent or diminished, and there is no ankle clonus. The hands are in some cases unaffected, but there may be wrist-drop. There is usually well marked muscular atrophy due to the neuritis, and there may be rigidity of the flexors due to trophic troubles round the joints. When the neuritis is cured a permanent deformity may remain, which will require surgical interference. In these cases it is not enough to cut the tendons, but forced extension or flexion must be made under chloroform in order to break down adhesions. The nails may be affected owing to the disease of the trophic nerves. The ocular troubles are found to include ophthalmoplegia. The "Argyle-Robertson" condition of pupil is found in rare cases. The external portion of both optic nerves is affected simultaneously, and central scotoma or alteration of the centre of the visual field with achromatopsia is found in alcoholics, as well as in cases of diabetes and tobacco poisoning. The mental symptoms include a history of dreams and nightmares. There is marked loss of memory, but although events may be forgotten from day to day, the incidents may be remembered afterwards in cases of recovery. Hallucinations of sight are frequent, and generally take the form of animals. On recovery, two ways of walking may be noticed, (1) as of one with tender feet; (2) the "high-stepper:" in this kind the thigh is much raised and the toe falls before the heel. Death is rare, but may result from affection of the vagus. One case on admission had paralysis of the diaphragm and remarkable tachycardia, and at that time death was imminent, but he began to recover. The diagnosis has to be made from cases of true tabes; in alcoholic ataxy there is no trouble of the bladder and rectum. The cases that may cause some difficulty in differential diagnosis are (1) true

tabes; (2) pseudo-tabes of alcoholism; (3) pseudo-tabes of syphilis.

When teaching on the subject of hysteria, M. Charcot used to point out that there was in many cases a family history of alcoholism, hysteria, fits, or some other evidence of a want of equilibrium in the nervous centres. He said that Jews were peculiarly liable to this, as well as to all other forms of nervous disorders, and there was some difficulty in finding a reason for this fact; it might be the result of the terrible persecutions which they had suffered as a nation for centuries during the middle ages. Many cases had also been reported from Switzerland, and especially from the neighbourhood of Zurich, by M. Eichorst. The exciting cause was generally a shock, either physical or moral, and examples of these given were—a fall into the water, a cab accident, a thunder clap, loss of money after hard saving, death of relatives, and unhappy marriage, &c. What is known as “railway spine” and “railway brain” was said to be the same thing, in most cases, as hysteria in the male. The symptoms of hysteria are multiform, and include local anæsthesia of varying extent, paræsthesia, choreiform movements, which may be rhythmic or may resemble in irregularity the movements of true chorea. There may be fits bearing a resemblance to those of epilepsy or of Jacksonian epilepsy. Some assistance in the matter of diagnosis may be obtained from the condition of the urine. In epileptic fits the urine has a high specific gravity; in hysterical fits the specific gravity is low. There is no obvious affection of the ocular muscles, of the pupil, or of the optic nerve, but there may be marked contraction of the visual field with achromatopsy in females. In some cases there is somnambulism, and in others the idea of committing suicide, depression, loss of memory, self-contradiction, &c. The diagnosis of hysteria appeared to rest in all cases on the discovery of areas of anæsthesia, and evidence that these did exist was given before us, because we saw the patient pay absolutely no attention when a pin was stuck in her, and then look with an expression of unfeigned surprise if by chance she noticed a spot of blood at the place. In some cases the diagnosis of hysteria was combined with something else as, for example, hysteria and neurasthenia, hysteria and alcoholism, and, in one case, where the diagnosis of hysteria had been made a year before, further symptoms had developed which simulated disseminated sclerosis, so that the diagnosis had to be reconsidered, and the question raised as to whether the patient had developed an organic disease on the functional one.

As might easily be imagined, in clinical lectures of this kind, cases of tabes were frequently brought forward, and on one occasion the osteopathic form of tabes formed the principal topic of discourse, and two cases were shown giving well-marked evidence of joint lesions, and dry specimens from the museum were shown as examples of the destruction caused by the trophic disease of the bones. We saw cases of femora with the heads rubbed down and the cotyloid cavity of the hip-joint worn away. In one case there had been ankylosis between the femur and hip-bone, followed by fracture of the femur.

CASE I presented the following history and symptoms:—The man was in apparently good health when he went to do his military service in 1891. After three or four days of walking he had pain in the hip-joint accompanied by cracking, and he was unable to walk. On examination, it is found that a line on a level with the anterior superior spines is nearer the inter-trochanteric line by 5 centimetres than in a normal case, and the man has lost some of his height. Among other symptoms, the man feels as if he had no face and no forehead; this is due to anæsthesia. There is also loss of motor-ocular power, so that he sees double.

CASE II.—Male, 69. This man has been tabetic since the age of 26, when he began to have attacks of lightning pain, which have continued at intervals. There is also absence of reflexes and strabismus, but he was able to continue at his hard work till the age of 63. At that time his left shoulder gave a crack, and there was a bruised appearance, with loss of part of the movements. There is also vertebral arthropathy, with loss of height. The patient has now both shoulders affected, and the spinal column so that the lower rib reaches the iliac crest.

No history of syphilis can be obtained in either of these cases, but the father was in both cases alcoholic, and in one case the grandmother was epileptic.

I have endeavoured to convey a faint idea of M. Charcot's teaching, but only those who have heard him can realise the shrewdness of his observations and the practical commonsense which he brought to bear on his investigations. No detail was too small, and no fact was too unimportant, to be worthy of his thought, and combined with this there was a quiet humour which pervaded his lecture, and made the time spent there very pleasant and instructive; we can only regret that opportunities of this kind have come to an end, but the memory of them will long live in the minds of his former auditors.

CURRENT TOPICS.

THE CHAIR OF MIDWIFERY IN GLASGOW UNIVERSITY.—The Chair of Midwifery and Diseases of Women being now vacant by the greatly regretted retiral of Professor Leishman, there is much speculation as to the result of the active candidatures which are being prosecuted. The profession at large is much interested in a contest whose result must have an important effect on our University, and through it on the future of many members of the profession. The opinions recorded in favour of one or other of the candidates by practitioners, and especially by local practitioners, must have great weight with the Secretary of State for Scotland, with whom the patronage lies. It may be said also that the profession in Glasgow and the West of Scotland would be greatly pleased should a son of their own *alma mater* be selected to fill the chair. It is exceedingly desirable that Glasgow should breed men of sufficient attainments to fill the chairs in her own University, and it was no doubt a source of legitimate gratification when the Chair of Surgery was recently filled with one of the University's own distinguished sons. There is, however, another side to the question, which ought to have its legitimate weight. The University is a national institution; it has been in the past, and ought to be in the future, limited by no local prejudices in the filling of the higher positions within its walls. It is incumbent on the patrons of chairs to do the very best for the University, and we feel sure that, if this is honestly done, the profession at large, and not least the local profession, will give its cordial approval. The kind of appointment which would least satisfy the profession, and would cause the greatest disapproval of the action of the patron, would be one in which political influence of any sort caused the appointment of one of the candidates who was not *the best*. If there is one of the candidates who seems to the patron to have distinctly the advantage of all the others, then let him be appointed without local reference. If there is no such prominent candidate, then the choice ought to go to the best of the local candidates. In giving expression to these views, which we believe to be those of the profession here, we do not in the least mean any distrust of the present patron of this chair, but it must be known that persons in such a position are sometimes slightly bewildered by the

many voices which reach them from all sorts of directions. We happen to know of a case of a similar appointment in which such a state of bewilderment on the part of a high official was at once dispelled by the wholesome advice, "Make a straight appointment, and everyone concerned will thank you." That is undoubtedly the opinion held by the profession here: one and all desire only the prosperity of the University. The distinguished man with whom the appointment lies, who is not only a statesman, but a man of high literary attainments, may be safely left to make a choice which can be justified on the broadest lines.

CHAIR OF MATERIA MEDICA, ANDERSON'S COLLEGE.—Mr. R. Barclay Ness, M.A., M.B. and C.M., has been appointed to the Chair of Materia Medica in Anderson's College, vacant by the resignation of Dr. Alexander Napier. Dr. Ness is, in our opinion, very well qualified for the office to which he has been appointed. Since graduating in 1887 he has had unusual opportunities for study and research in our chief Glasgow hospitals, having been successively resident in the Western Infirmary, the Royal Hospital for Sick Children, Belvidere, and the Maternity. The experience gained in these appointments should be of the greatest service to Dr. Ness in teaching materia medica and therapeutics, and we heartily wish him every success in his office.

THE ETHICS OF HOSPITAL REPORTING.—This is a matter which has been exciting a good deal of attention in certain professional circles during the past few months, and as it is a subject of more than merely professional interest, we think it right briefly to refer to it. It is a generally understood thing that the records entered in ward journals are the property of the hospital, and through the hospital of the public. Such journals are duly preserved, not merely as historic archives of the institution, but as records of skilled observation and study of disease, which may be of priceless value to future generations of hospital physicians and surgeons. It is the duty of the resident assistant, under the supervision of his chief, to enter in the journals a reasonably detailed account of the clinical history and condition of the patient, together with more or less frequent notes of the progress and results of the case, as well as any remarks which the physician or surgeon may see fit to dictate. The chiefs, however, are directly responsible for the contents of their ward journals. That the journals should be kept in such a

condition as to be of some value to those who come afterwards, is a proposition that requires no further argumentation.

We are lead to believe, however, that a fashion has sprung up among some hospital physicians and surgeons of keeping private journals. Now, we have no objection whatever to hospital chiefs keeping private journals if they like, provided that this does not lead to a neglect of duty as regards the ward journals. In some cases we believe this has been so, and ward journals have been starved and emaciated whilst private records have become plethoric from a superabundance of rich food. We understand that resident assistants have in this matter been pressed into the private service, to the detriment, we cannot help believing, of the public duty. We have again to say that we see no reason why a hospital chief should not keep a private record for his own use, but we are very firmly convinced that he has no right whatever to ask that his resident should keep two sets of journals. If a private record is desired, the chief should make it himself, or pay some one to make it for him. The duty of the resident, as a hospital official, extends no further than the entering of a careful record of the case in the hospital ward journals, and there is a moral obligation laid upon the chief to see that the report which has been entered is not of such a nature as to bring discredit upon the institution, which he has the honour and the privilege to serve.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—The first ordinary meeting of the session will take place in the Faculty Hall, 242 St. Vincent Street, on Monday, the 9th inst., at 8 o'clock. The following are the office-bearers for the session 1893-94:—

<i>President,</i>	.	.	.	.	DR. SAMSON GEMMELL.
<i>Vice-President,</i>	.	.	.	.	DR. D. N. KNOX.
<i>Treasurer,</i>	.	.	.	.	DR. J. B. RUSSELL.
<i>Secretary,</i>	.	.	.	.	MR. A. ERNEST MAYLARD.
<i>Editorial Secretary,</i>	.	.	.	.	DR. J. H. CARSLAW.

Other Members of Council.

DR. HECTOR C. CAMERON.	DR. CHARLES WORKMAN.
DR. HENRY RUTHERFURD.	DR. R. M. BUCHANAN.

The fourth volume of the Society's transactions will be ready for distribution.

REVIEWS.

A Handbook of Obstetric and Gynæcological Nursing. By the late FLEETWOOD CHURCHILL, M.D.; revised and greatly enlarged by THOMAS MORE MADDEN, M.D., F.R.C.S.ED. With numerous Illustrations. Dublin: Fannin & Co. 1893.

DR. MORE MADDEN has never heard of the burning question, "Should midwives be ended or mended?" At any rate he assumes, without reference to any other alternative, that it is his part to mend them if possible, and in this little book he does his best in that direction.

It is very difficult to write a book of this description, where, on the one hand, you wish to give the learner all the knowledge you can impart, and, on the other, you wish to confine the application of that knowledge within very narrow limits. "A little knowledge is a dangerous thing" when you presume to act as if your knowledge were perfect. And Dr. Madden evidently thinks that the knowledge a nurse possesses of both healthy and diseased processes should be as great as possible, even if the result, so far as she is concerned, be merely that she knows when "to send for the doctor."

This little handbook covers the whole ground of Obstetrics—Anatomy of Pelvic and Generative Organs, Signs of Pregnancy and of Approaching Labour; Management of Pregnancy, Labour, and the Puerperal State; Difficult, Preternatural, and Anomalous Labours; Puerperal Fever; Mammary Abscess; and the Management of the Child.

Under Gynæcological Nursing are discussed the subjects of Bacteria, Methods of Examination, the Use of the Thermometer, the Syringe, the Irrigator, and the Catheter, the Management of Laparotomies, the Treatment of Uterine Displacements, the various kinds of Disinfectants, &c.

There are a few details in which the practice proposed by Dr. Madden might be questioned, notably the after treatment of laparotomies, and the use of ergot in the second stage of labour, but on the whole, this handbook will be found a safe and clear guide for midwives and nurses, and may also, as the editor says in his preface, "be found deserving of the attention of students and junior practitioners" in obstetrics and gynæcology.

Diseases and Injuries of the Teeth: a Manual of Practical Dentistry for Students and Practitioners. By MORTON SMALE, M.R.C.S., L.D.S., and J. F. COLYER, M.R.C.S., L.D.S. London: Longmans, Green & Co. 1893.

WE have no hesitation in recommending this manual to the careful perusal of the dental student, especially to those who are struggling with first principles, and whose experience is as yet limited. The path, always a narrow one, between right and wrong will be found traced out by gentlemen whose knowledge of beginners and their wants is a somewhat extensive one, and the evolving dentist will do well to lay up in his heart, and practice in his life, the good advice with which the work abounds. We are not sure, however, but that the practitioner, who is after all the true type of the more advanced student, will wish that some parts had been considerably enlarged, especially that devoted to caries and its treatment. While it is true that this "is by far the most prevalent disease of the human race," it is perhaps equally true that no operative interference in the whole province of surgery commands an equal measure of success, and a somewhat more extensive consideration of special methods and cases would have been equally interesting and instructive.

We cannot but deplore that the questions of "crown" and "bridge work" are by intention omitted, as the fact that "they are fully dealt with in books specially bearing upon the subject" holds with equal truth for any part of the volume, and reminds one of the play of "Hamlet," minus its hero. We should be inclined to regard as equally imperfect a manual of clinical medicine that remained silent upon the phenomena to be observed by percussion or auscultation.

The systems of "inlays" mentioned in the work look well, we admit, upon paper; a more extended acquaintance in every day practice, however, places them upon an almost equal footing with white plastic fillings, which are more or less temporary in their duration. The fact that such artistic work depends for its permanency upon its anchorage in a transient medium reduces its value, and but emphasises more permanent if older procedures.

From the dental-surgeon's point of view, it may be that, "in teeth, the pulps of which are chronically inflamed, it is as well to leave the dressing (arsenical) in for at least four

days, as these teeth are often extremely difficult to devitalise." Sitting in the place of the patient, we confess that we should not have any objection to an attempt being made to reduce such inflammation ere devitalisation be accomplished.

Considering that pyorrhœa alveolaris is, next to caries, the *bête noir* of tooth life, we think the authors would have rendered their readers a more substantial service had they devoted a little more space to its considerations, especially to the early stages, when, if ever, this formidable disease may be grappled with.

A considerable part of the work is taken up with the extraction of teeth, and a short, but comprehensive sketch of the diseases of the oval cavity generally.

The text is profusely illustrated, the photo-micrographs being particularly well worthy of careful study; one or two of the diagrams are somewhat diagrammatic—viz., Fig. 193, while Figs. 226-230 represent imperfectly prepared compound cavities, and will tend to convey an impression to the students which was not in the authors' minds.

Those who read the work, bearing in mind the recent manifesto of the General Medical Council, that British dental education is second to none, may perhaps be inclined to wonder if such a declaration was not a little premature; but, leaving aside all comparisons, which are odious as well as invidious, we congratulate alike the authors upon their work, and the students whose good fortune it may be to cull from so wide and reliable an experience.

The Cholera Epidemic of 1892 in the Russian Empire. By FRANK CLEMOW, M.D. Edin. London: Longmans, Green & Co. 1893.

THE appearance of this volume at the present moment is particularly opportune, and a perusal of its pages is to be commended to the epidemiologist and the clinician alike. To the former it is of interest from the very lucid and withal short account which it gives of the epidemic spread of cholera throughout the Russian empire in 1892, and to the latter from the *résumé* it contains of the various methods of treatment of the disease adopted in the hospitals of St. Petersburg and Cronstadt. Dr. Clemow had exceptional facilities for the successful accomplishment of the work thus indicated, particularly in being able to glean his information

directly from the most authentic Russian sources, and the work is inscribed to His Excellency the distinguished Director of the Medical Department of the Ministry of the Interior. This last and, in respect to case mortality, most virulent of all the epidemics of cholera which have invaded Russia, began in Kaachka, a frontier town on the Transcaspiian Railway 130 versts (87 miles) to the north of Meshed, the capital of Khorassan, and one of the most densely populated cities of Persia. Meshed is the seat of a mosque and of the tomb of the holy Inman Riza, and this shrine attracts Mussulman pilgrims from both sides of the frontier. Cholera was present in Meshed in May, 1892, and on the last day of that month (19th, old style) it appeared in Kaachka. From this it spread east and west along the line of railway communication, reaching Oozoon Ada, on the western shore of the Caspian sea, six days after its appearance in Kaachka. From thence it reached across the Caspian sea to Baku, and along the Transcaucasian railway which connects Baku with Batoum, it spread through the region of the Southern Caucasus, to the Black sea ports.

From the Caucasus European Russia became infected by two channels—viz., along the waters of the Volga, and from Rostof-on-Don through the southern governments of Russia bordering the sea of Azof and the Black Sea. An interesting comparison is here made of this with two earlier epidemics, in regard to the time occupied in spreading northward from Astrakhan, and westward from Rostof. The previous epidemics selected for comparison are those of 1830 and 1847, and by the Volga route the number of days elapsing between the appearance of cholera in Astrakhan and Moscow was, in 1830, fifty-seven days; in 1847, seventy-six days; while in 1892 it covered the distance in thirty-three days. "In 1830 there were no railways in Russia; in 1847 there were 347 versts of railway lines, insufficient to affect in any way the spread of an epidemic; in 1892 there were 30,366 versts of lines in the empire, and of these 28,191 were in European Russia. Facility and speed of communication by water have advanced in like proportion. The conclusion appears inevitable that here is to be found, partly, if not wholly, the explanation of the more rapid course of last year's epidemic."

In tracing the epidemic through the various "governments" or provinces, interesting notes are here and there made of the domestic and social customs of the various tribes and peoples who acknowledge the rule of the Great White Tzar,

and to any one in want of a new sensation we commend a description which Dr. Clemow takes from the Journal of the Imperial Caucasian Medical Society of the *zemlianki* or "earth huts" of the Georgians, Tartars, and Armenians, who inhabit the high table-lands of the Southern Caucasus. That people living in such surroundings should be severely visited by cholera, is, as Dr. Clemow remarks, not surprising. To us the wonder is that they should live long enough to die of any recognisable pathological condition whatever. With the state of things thus described before us, we are prepared to hear that not only in the Caucasus, but in almost every town throughout the Empire of Russia, gastro-intestinal catarrh causes more deaths than any other single disease or group of diseases, and to accept Dr. Clemow's statement that the well-system of Russia is throughout polluted, and that so long as it is so cholera must spread throughout the empire when once it has passed the frontier. It is curious to turn from this to the terms of eulogy in which Dr. Clemow speaks of the energetic efforts of the Russian authorities to cope with the outbreak under consideration. In one respect this eulogy is well merited, for orders were issued by the Russian Imperial Government, to the number of fourteen, in the weeks between 8th May and 3rd July of last year, ten of them being in the first four weeks of that period, which cover the whole duty of a state called upon to deal with a cholera invasion, from instructions as to the formation of sanitary commissions in centres of government down to the minutest details of personal behaviour and dietary. All this is done, moreover, in terms which it is impossible to criticise. But we do not hesitate to say that Russian sanitary administration begins at the wrong end, and there is something approaching the sublime in the conception of Russian officialism scattering reams of instruction over the human cesspool which the Caucasian Tartar calls his home.

We have already referred to the chapter devoted to the treatment of cholera in St. Petersburg, and there is an interesting description in the chapter following this of the methods of disinfection adopted in that city, and a drawing illustrating MM. Vassilief and Krel's apparatus for sterilising cholera dejecta. Sketch-maps help the readers to follow the lines of the epidemic, and several diagrams place before him the mortality in each of the several governments invaded. Several of the chapters have already appeared in the pages of the *Lancet*, but we think Dr. Clemow has been well advised in issuing the work in the form which it now assumes.

Lectures on Sanitary Law. By A. WYNTER BLYTH, M.R.C.S. (England), L.S.A. (London), Barrister-at-Law of Lincoln's Inn, Professor of Hygiene, College of State Medicine. London: Macmillan & Co. 1893.

THIS volume comprises twelve lectures on sanitary law delivered by the author at the College of State Medicine as part of the usual course of instruction on sanitary science. In an appendix are examples of bye-laws in force in the Metropolis as to certain offensive trades, &c., and also proposed bye-laws under the Public Health (London) Act. The various statutes relating to the adulteration of food and drugs are also inserted.

While primarily intended to convey instruction in the working of the various Acts which are specially applicable to England, the work is a useful one to all who are engaged in sanitary work elsewhere. Decisions are frequently quoted or referred to, especially in cases where an alternative reading of a clause would seem to suggest some ambiguity in its interpretation. The volume forms a valuable addition to the standard literature of sanitation.

The Health Officer's Pocket-book. By EDWARD F. WILLOUGHBY, M.D. Lond., D.P.H. Lond. and Camb. London: Crosby, Lockwood & Son. 1893.

THE author's intention is that this work should form a portable book of reference for such facts, formulæ, and data as are indispensable in the daily work of a sanitary officer. Part I is devoted to Practical Hygiene, and Part II to Sanitary Law, and under one or other of these sections there is little in the whole field of hygiene which does not find a place in the volume. We cannot refrain from expressing our opinion that Dr. Willoughby has well accomplished the aim which he had in view; but in one page, which we shall afterwards refer to, there occur so many statements which are so absolutely at variance with the opinions of other authorities, and with our own experience, that we feel compelled to refer to them at length, in the hope that when a second edition of the work is called for some attempt will be made to bring them into line with current experience and opinions. On page 122, subsection "Incubation Periods," this statement is made:—"Though not absolutely constant, the wide ranges (of these periods), as from

one to twenty-one days given in books, are based on errors of observation, or on fallacies of inference." This prepares us for the following facts regarding *typhus fever*:—"Incubation about a week. Eruption follows an invasion of one day." This certainly does not correspond with what we know of typhus fever. Then, again, in *small-pox* we are told that the "eruption appears on the thirteenth to fourteenth day from infection, the incubation lasting ten to twelve days." This period may be exceeded. We would like very much to know what our author means in the following statement regarding *scarlatina*:—"The duration of the disease is about a week, and the patient is a source of danger so long as any peeling goes on, say three to six weeks." There is surely some confusion here manifest in his conception of disease. Moreover, in *diphtheria*:—"Apparent extension beyond four days is really due to the nature of the disease not being recognised. Infection lasts a long time—that is, until the throat has resumed a perfectly healthy state." It is difficult to take these statements seriously. Happily, Dr. Willoughby's other facts are not of a like disputable sort, and but for the existence of the unhappy page on which these occur, the book might be heartily commended.

The Sanitary Inspector's Handbook. By ALBERT TAYLOR, Associate Sanitary Institute; Chief Sanitary Inspector to the Vestry of St. George, Hanover Square, London. With Illustrations. London: H. K. Lewis. 1893.

THE volume is dedicated to Professor Corfield, and aims at supplying to the sanitary inspector practical information on the various matters which come daily under his notice. Mr. Taylor is to be congratulated on the production of this work, and we commend it to the notice of sanitary inspectors, and others who wish to become conversant with their duties. Like most works of this class, however, the illustrations of legal procedure are derived entirely from the practice before English courts of law, but this in reality detracts very little from the value of the book, even for Scottish inspectors. In one respect, however, we think it well to introduce a note of warning. On p. 125 the inspector is instructed as to certain enquiries which he is to make in connection with cases of infectious disease, "*always endeavouring to persuade the parents or guardians of the patient to allow the case to be removed to the sanatorium or fever hospital.*" We do not hesitate to regard this instruction as founded on a misconcep-

tion of the duties of the sanitary inspector. The care and disposal of a patient suffering from an infectious disease is primarily the duty of the private medical attendant. But his power of satisfying the demands of isolation is limited by the domestic surroundings of the household in which the illness occurs, and if the public safety is imperilled by these limitations, then the sanitary authority, as representing that interest, may fairly claim to be heard in support of removal to hospital. It is, we believe, true that in the majority of cases the demands of isolation can only be satisfied by such removal, but the sanitary inspector who affects to say when these are and when they are not satisfied is clearly exceeding his duty.

Public Health Laboratory Work, by HENRY R. KENWOOD, M.B., D.P.H., Instructor in the Hygienic Laboratory, University College; *including Methods Employed in Bacteriological Research, with Special Reference to the Examination of Air, Water, and Food*, contributed by RUBERT BOYCE, M.B., Assistant Professor of Pathology, University College. With Illustrations. London: H. K. Lewis. 1893.

DR. KENWOOD prefaces this work with the remark that its "pages contain broadly that which is taught under the direction of Professor Corfield in the Practical Hygiene Course at University College." The work, however, is restricted to a very complete description of selected methods of examining water, air, and food, both chemically and microscopically, and to this is appended Dr. Boyce's chapters on bacteriological research. The chemical examination of water is detailed at great length, occupying one-third of the 480 pages of which the volume is composed. Dr. Kenwood, like so many others, laments the unnecessary confusion introduced into "water reports" by the various methods in which chemists express the results of their analyses. These results, when stated as percentages, or as grains per gallon, or parts per 100,000, or per 1,000,000, or per 100,000,000, can, it is true, be readily converted into one common expression, but there are many reasons why this should be done by the analyst himself. Dr. Kenwood suggests the retention of the expression "grains per gallon" to indicate the amount to which the poisonous metals are present, and that the present custom of stating parts per 100,000 be restricted to the other inorganic constituents. If the phrase "parts per 100,000,000" were to be adopted for stating the amount of organic matter present, the infinitesimal

quantities in which it is usually present might then be stated in whole numbers.

Regarding the Wanklyn process as described by Dr. Kenwood, we are inclined to make some observations on two points. The first is a very minor one, but we think there would be some advantage to the student, who goes to this volume for his first knowledge of Wanklyn's process, if the directions for preparing the standard solutions were before him when he begins to learn how they are to be used. It is not given to every student to know that the precise information he is in search of is only a few pages in advance of the point his reading has reached. The second point is to introduce a query as to the constancy with which three-fourths of the "total free ammonia" is present in the first 50 c.c. of the distillate. We believe we have seen one-half only of the total free ammonia therein.

Dr. Boyce's chapters form a useful addition to the work, which is sure to find a place for itself among many similar handbooks now being issued.

Hygiene and Public Health. By B. ARTHUR WHITELEGGE, M.D., B.Sc., Lond., D.P.H., Camb., Medical Officer of Health to the West Riding County Council. Second Edition. London: Cassell & Co. 1893.

FEW words are required to introduce a work, the first edition of which only appeared about two years ago. The work proceeds on the lines which gained acceptance for its predecessor—such additions being introduced as were necessary to bring it up to date.

Hygiene and Public Health. By LOUIS C. PARKES, M.D., D.P.H. London University. London: H. K. Lewis. 1892.

THE excellency of former editions of this work gained for them a place among the standard literature of hygiene, and in this edition the character of the former editions is maintained. New matter has been introduced in the sections dealing with smoke prevention by mechanical appliances, in certain sections of the chapters dealing with climatology and meteorology, and with epidemic influenza. The article on diphtheria has been re-written. A large number of illustrations help to elucidate the text. It well sustains the reputation established by its predecessors.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland, comprising Lists of Papers read during 1892. Tenth Annual Issue. London: Charles Griffin & Co. 1893.

WE fully recognise the industry shown in the editing of this work, and also the value of it, as giving, in some measure, an index to the scientific work done in this country. We feel, however, as we have felt in regard to former issues, that it altogether attempts too much or too little. It gives lists of papers read during 1892, but these lists are limited to a certain, and comparatively a small number of societies. The principle on which the selection has been made is difficult to discover, and we rather suspect that the complacency or industry of the secretaries is the real determining element in the matter.

While making these critical remarks, we are glad to be able to notice a distinct improvement in the character of the work. It is more complete than former issues, and also, so far as we have looked at it, more correct.

The Leeward Islands Medical Journal: being the Proceedings of the Leeward Islands Branch of the British Medical Association, 1892. Vol. II. Edited by H. A. ALFORD NICOLLS, M.D., F.L.S., C.M. (Aber.), M.R.C.S., &c. London: J. & A. Churchill. 1892.

THIS far-off Association is composed of nearly thirty members who reside on eight different islands of the Lesser Antilles Group. In a pleasantly written preface, the retiring editor gives us some information with regard to the Society, and he alludes to its present flourishing condition. The opportunity for intercourse between the members must always be more or less uncertain, and, at times, this may be impossible. Obviously, too, the members (who are all Government officials) cannot all leave their posts of duty at one time to attend the meetings of the Association, so that the publication of the proceedings, which is done at Government expense, is an important means of mutual help. Many diseases which are common in the Leeward Islands are practically unknown in this country, and the practitioner who has newly settled there will often benefit by the experience of the older medical

residents. The latter, again, are none the worse of hearing the views of men who have newly arrived from the centres of modern learning, and whose theories may throw light on some ailments that are little more than mentioned in the text-books.

The volume is well edited and tastefully got up.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By T. K. MONRO, M.A., M.B.

Bright's Disease.—In a discussion in the French Academy of Medicine, M. Germain Sée expressed his belief that in nephritis it is very rarely that albumen is completely and permanently absent from the urine. In order, however, not to overlook it, it may be necessary to examine the urine at different periods of the day, and not only in the mornings, as is commonly done in hospitals. Many of the signs regarded by high authorities as indicative of Bright's disease have no special value, being met with in a multitude of nervous disorders. Increase of arterial tension, about which so much has been written, cannot be measured clinically. (Edema of the face and lower limbs is, in the absence of varices and of heart disease, a sign of considerable importance. But the two facts of the first importance are these : (1) The toxicity of the urine as described by Bouchard, and (2) the diminution of urea in the urine.

Gout is a cause of Bright's disease only so far as it gives rise to arterio-sclerosis, and gouty kidney has nothing to do with the kidney of renal lithiasis. The symptoms attributed to "chloro-Brightism" depend either on a congenital narrowness of the arteries, or on the fact of heart disease being associated with chlorosis. In true "chloro-Brightism" there is either albuminuria, or at least some puffiness about the ankles and eyelids.

Milk has a complex and, as yet, ill-understood action in such cases. Apart from the neutralisation of toxins, one has to bear in mind the nutrient properties of casein, the dimetic action of lactose, and especially the presence of phosphates of lime, which are transformed into phosphoric acid, and so absorbed.—(*Progrès Médical*, 1st July, 1893.)

The Nasal Reflex in Chloroform Syncope.—M. Guérin remarked to the same Academy that he had long been aware that inhalations of chloroform by the nose were much more dangerous than similar inhalations by the mouth. The irritation of the pituitary mucous membrane can, in fact, produce by reflex action a fatal syncope.

By request of M. Guérin, M. Laborde showed a tracheotomised rabbit, to whose thorax there was applied an apparatus for registering the beats of the heart. As long as the chloroform was administered by way of the tracheal canula, the cardiac contractions went on unaltered ; but, when the anæsthetic was inhaled by the nose, they became feeble, slow, and irregular. When the anæsthesia was already deep, nasal respiration had much less effect than at the commencement.

M. Le Fort related a clinical experience he had had many years before, illustrating the same thing. A child which was to be operated on for syndactyly was breathing in the chloroform very slowly. It was therefore told to breathe more deeply. Instead, however, of taking a deep breath, it made a long, forcible snuffle, and immediately died. Insufflation by mouth to mouth, artificial respiration, and tracheotomy were of no use, death having taken place by syncope.

M. Le Fort remembered that in the early days of ether anæsthesia pincers were used to compress the nostrils, and he remarked that many surgeons who employ a towel or pad for giving chloroform take care to compress the nose at the beginning.—(*Progrès Médical*, 15th July, 1893.)

A New Sign of Chlorosis (Durozier).—This consists in an exaggeration, in the palms of the hands and soles of the feet, of the chlorotic tint of the face. The describer has seen the yellow tint pass into saffron, has thought that the girl must be employed in a painter's establishment, has found the same colour on the soles of the feet, and has had to admit himself perplexed. The colour disappeared as treatment proceeded. Since then the observer has been told by several women that, before undergoing treatment with iron, the palms of their hands had a yellowish hue which had attracted their attention. This colour, it is claimed, does not exist in cancerous or anæmic patients, but is peculiar to chlorosis.

In chlorosis there is an increased destruction of red corpuscles; hæmatosin is dissolved in the serum, colours it, and impregnates the epidermis; just as in cyanosis the serum is tinged with violet; in icterus with yellow; in Addison's disease with black.

Whether chlorosis can be recognised by its venous bruits alone is doubtful. Certainly in no other disease does one hear more intense, sibilant, crepitant, friction-like bruits; to right and left, over neck, groins, and eyes—everywhere except at the back (though this is not the opinion of certain English physicians). In cancer the venous hums are exceedingly loud, and resemble the murmurs of aortic stenosis. Such hums exist in icterus, and suggest mitral and tricuspid insufficiency. They are heard in rheumatism, and are a strong incentive to the diagnosis of endocarditis. These fluid hums pursue us everywhere; is it that they take their various qualities from the various states of the blood?—(*La France Médicale*, 7th April, 1893.)

Discharge of Ascarides by the Umbilicus.—Dr. Valude reports the case of an infant which was brought to him on the 4th October, 1891, suffering, it was said, from worms, which were discharged through the navel. The child was a female, aged 14 months, and otherwise perfectly healthy. No redness or swelling could be seen on examination of the umbilicus, except that the lower half constituted a slight protuberance of the size of a pea, with a moist abraded surface, from which, the mother alleged, the worm made its escape. Pressure on the part established the absence of inflammatory infiltration, but did not cause any worm to appear. After waiting a little while, however, the observer saw one protrude, and he withdrew it himself. Another followed almost immediately. Both were whitish grey in colour, 8 to 10 centimetres long, very lively and active, and perfectly dry; they appeared to come from the lower part of the abdomen.

The child had, from the second week of its life, been partly fed on soup and pap, as the mother's milk was insufficient. In the last week of September, 1891, it began to pass worms by the anus, and on several occasions it had passed seven similar to those above described. On the 3rd October, the lower part of the umbilicus was red and swollen. On the morning of the 4th, a worm emerged from this swelling, and was followed by five others. The child was taken to a druggist, who withdrew three more, and sent the patient to the writer. Some fifteen ascarides were discharged by the navel on that day alone. Santonin had no effect in causing worms to be passed by the rectum; but, a week later, the infant passed five by the anus spontaneously.

On the 8th November, the umbilicus was thoroughly cicatrised, while the general health continued perfect throughout.—(*La France Médicale*, 28th April, 1893.)

Icterus and Atrophy of the Liver in Connection with Syphilis.—According to Senator, icterus and diseases of the liver rarely occur in the course of early syphilis in Germany, whereas in France they are often seen. This form of icterus resembles the ordinary catarrhal form exactly, but it is peculiarly obstinate to non-specific treatment. The only German observations on the subject are those of Engel-Reimers, and they agree with what has been taught by French authorities. Senator has no experience of such cases himself, but he is satisfied that syphilitic icterus does occur. There are different views as to its nature. Gubler thinks it is exanthematous. Cornil, Lancereaux, and Engel-Reimers believe there is a glandular swelling in the porta hepatis. Senator inclines to Gubler's view, and suspects an inflammatory swelling of the intestinal mucous membrane.

Still more important is the occurrence of atrophy of the liver in syphilis. Engel-Reimers has had three cases, and Senator two, which were quite characteristic. One of them was cured in spite of intercurrent disease of grave character. There have thus now been recorded nine cases of this disease of the liver in connection with early syphilis, two being in males, and seven in females.—(*Deutsche Med.-Zeit.*, 24th April, 1893.)

Treatment of Chronic Constipation in Early Infancy.—Three interesting papers upon this subject, which were read at the American Pediatric Society in May last, are published in the *Archives of Pediatrics* for September.

The first deals with the *dietetic treatment*, and is by Dr. Emmett Holt of New York, whose argument is based upon observations showing that, when the diet consists exclusively of milk, the stools are kept of proper bulk and consistency by the unabsorbed fat they contain. The inference is that "nature requires that the infant's food shall contain much more fat than can be absorbed," and "the chief dietetic cause of constipation among infants during the first year is deficiency of fat in the food; the constipation is aggravated if there is at the same time an excess of casein." The greater tendency to constipation in infants fed upon cows' milk is explained by the difference in the proportions of fat present. The mode of treatment suggested is to supply the requisite amount of fat by the use of a certain quantity of cream; this had been attended by good results in the author's practice, the quantity of cream used varying according to circumstances. "The value of cream in the treatment of habitual constipation in children from 1 to 4 years of age is almost as great as during the first year of life, although difficulty is sometimes experienced in getting the child to take the proper amount."

Next, there is a paper on the *medicinal treatment* by Dr. C. S. Putnam of Boston, but its author insists on the necessity of doing without medicines if possible, and he regards, as of chief importance, the removal of the cause of the constipation by attention to diet or otherwise. Drugs are most likely to be called for when there is sluggish action, with scanty secretion, in the upper parts of the bowel. The occasional advantage from tonics is not overlooked; but, for the few cases in which it is necessary to resort to laxative medicines, the author prefers "senna (compound licorice powder) for a vegetable, phosphate of soda for a saline, and emulsified oil, in small doses, made an integral part of the food."

Lastly, the *local treatment* is discussed by Dr. L. M. Yale of New York, who, like Dr. Putnam, refers back to dietetic methods as the main point. Massage of the abdomen, suppositories, and enemata are then considered. The first mentioned (massage) had been found useful, unless when the delay was in the rectum itself; then certain suppositories and enemata (particularly of olive oil and of glycerine) had been found of temporary advantage, though not by any means finally curative.—J. H. C.

PHYSIOLOGY.

By WILLIAM SNODGRASS, M.A., M.B., C.M.

Unipolar Faradisation as a Method of Physiological Excitation.—In Faradic excitation of nerves it is customary to apply both poles of the secondary coil. Professor Charpentier (*Archiv. de Physiol. Norm. et Patholog.*, July) points out that in certain cases it is sufficient and preferable to use one pole only, the other being left free. In this way we have to do not with electrical currents, but with variations of potential which serve to excite the tissues. Excitations may also be produced by interposing a condenser between the electrode and the tissues—that is to say, putting one terminal in connection with one of two armatures, the tissues with the other.

Unipolar Faradic excitation acts especially on the motor nerves; it is less active on sensory nerves, and does not act at all upon muscles, at least with the ordinary conditions of intensity and of inducing apparatus. The position of the secondary coil can be so adjusted that the motor nerve will be distinctly stimulated, while it is necessary to push the coil several centimetres nearer to the primary, in order to stimulate sensory nerves. It is thus possible to act upon intact motor nerves without inducing a sensation of pain.

To produce unipolar excitation greater intensity of induction is required than in excitation with the two electrodes.

A greater effect is obtained if the unemployed pole is connected with the earth.

Inunipolar Faradisation the nerve should not be left in contact with the tissues.

If the nerve is excited by two similar electrodes attached to the same pole of the secondary coil, the effect is less than with one only, the one inhibiting the other.

An important advantage of this method is that it does not produce fatigue readily. It is thus suitable for prolonged experiments on motor nerves.

Unipolar Faradic excitation cannot be easily applied to the human subject, as the motor nerves are rarely superficial, and it is only in some of the more accessible, such as the motor filament to the long supinator, or on the thenar eminence, that it has been successfully tried. The difficulty is to excite the motor nerves without affecting the sensory nerves.

Toxicity of the Blood of the Common Toad.—MM. Phisalix and Bertrand (*Archiv. de Physiol. Norm. et Patholog.*, July) have found in the blood of toads certain active principles having the same poisonous effect upon frogs and mammals as the venom secreted by the cutaneous and parotid glands of toads. When injected into frogs they produce paralysis beginning in the hind limbs, slowing and arrest of the heart, and contraction of the pupil. They are produced by an internal secretion of the cutaneous glands, and to this internal secretion must be attributed the immunity of toads, as in venomous reptiles, for their own poison.

The Difference of Time lost in the Perception of Different Colours.—Professor Charpentier has devised a method by means of which it may be demonstrated that the time lost in bringing the visual apparatus into action varies for different colours, and that it increases in proportion to the refrangibility of the colour. The successive apparition of colours in the electric spark seen with the spectroscope is a direct but not measurable experiment. Arrangements, however, may be made so that two or more rays of pure colour may be made to fall simultaneously upon the eye, having passed in their course through a narrow aperture in a black rotating disc, viewed through a blackened tube. The colours will then appear not blended together, but in succession; and from the apparent displacement, and knowing the velocity of rotation of the disc, the difference of the moments of apparition of the colours on the same point of the retina may be estimated. Red will then appear about four-thousandths of a second before green, and green about seven-thousandths of a second before blue.—(*Archiv. de Physiol. Norm. et Patholog.*, July.)

On the Physiological and Therapeutic Influence of Testicular Liquid on the Animal Organism.—In May, 1892, MM. Brown-Séquard and D'Arsonval arranged to supply organic liquid extracts gratuitously to all medical men who should ask for them, to be employed in the treatment of any affections. The results obtained have been reported, and a *résumé* of these have been published as follows:—

1. Return of the normal condition in locomotor ataxia under the influence of testicular liquid. Out of 342 cases of undoubted locomotor ataxia, 314 were much improved or completely cured. Much the best results were obtained when a large dose (5 or 6 cc.) was injected daily.

2. Other sclerosis of the spinal cord. In 117 cases of disseminated sclerosis, 97 of considerable benefit or almost complete cure are reported.

3. Friedreich's disease or other organic affection of the spinal cord. In 2 cases of Friedreich's disease there was very considerable improvement. Sixteen cases of myelitis and other organic affections of the cord have shown progressive amelioration.

4. Cerebral affection (hæmorrhage, embolic softening, inflammation, traumatism). In 13 out of 17 cases, paralysis, contractures, more or less disturbed mental conditions have notably improved. The course of general paralysis has not been modified.

5. Pulmonary tuberculosis. More than four-fifths of 67 cases have shown improvement in cessation of cough, of fever, of night sweats, return of strength, of appetite, of sleep, &c.

6. Paralysis agitans. Of 27 cases, 25 have improved, but only 1 complete cure is reported.

7. Cancer. In 103 cases of cancer of the breast, uterus, vagina, rectum, face, lips, nostrils, or other superficial parts, all symptoms have disappeared in spite of the persistence of the tumour. The characteristic tint and other signs of cancerous cachexia, such as weakness, disturbances of digestion, nutrition, &c., hæmorrhages, suppurations, ulcerations, local pains, all have disappeared, and, at the same time, sleep and cheerfulness of mind have returned. In certain cases diminution of the tumour is reported.

8. Neurasthenia, hysteria, chorea, and other functional nervous affections. These do not show such good results as do the organic cases. In some cases complete cures have been reported—more especially in chorea.

9. Diabetes and polyuria. Instances of improvement or cure are reported. In some cases better results have been obtained with a mixture of pancreatic and testicular extracts than with either alone.

10. Debility—senility. Much improvement has been got in such cases. In 39 treated by the authors there were only 4 or 5 that were not completely successful.

11. Symptoms have been successfully combated in organic affections of the lungs, heart, kidneys, stomach, liver, intestines, uterus, in Addison's disease, rheumatism, gout, fevers, neuralgia, pseudo-hypertrophic paralysis, &c.

12. So far as the authors know, epilepsy and certain forms of mental disease are the only forms of disease in which this mode of treatment has entirely failed.

In conclusion, it is argued that since the most varied morbid symptoms will disappear under the influence of testicular injections, the nervous system, through an increase of its force by the liquid, must have a more powerful influence on nutrition than has previously been supposed.

Some Effects of Cutaneous Excitation.—M. H. Roger gives an account in the *Archiv. de Physiol. Norm. et Patholog.*, January, 1893, of some observations of the effects produced on animals by the application of chloroform or chloral to the skin, or by immersion of various parts of their bodies in cold or hot water. Numerous tracings show more especially the effect on the respiration and temperature. Strong excitation of the cutaneous nerve terminations produces an aggregation of morbid symptoms which we designate by the term nervous shock. This may be brought about by the application to an extensive surface of the skin of chloroform or chloral, or by plunging into

ice-cold or hot water either a considerable portion of the body, or a richly innervated region such as the anterior part of the head. In some cases the first and almost immediate result is an arrest of respiration (respiratory syncope), following which come the characteristic phenomena of shock, gradual slowing of the respiration, fall of body temperature, sometimes to a very considerable extent, and the appearance of red blood in the veins due to diminished tissue metabolism.

In all cases the phenomena observed were active manifestations, and not due merely to faintness; nervous impulses transmitted from the sensory surface to the nerve centres produced, by means of a reflex mechanism, inhibitory acts, the principal of which was an arrest of exchanges between the blood and the tissues.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Sympathetic Ophthalmia.—Two papers have recently appeared on this subject. One of them is by Deutschmann (*Beiträge für Augenheil.*) and the other by Richard Greeff (*Knapp's Archives of Ophthalmology*).

The first mentioned is an attempt at a refutation of the more important objections to the migratory theory which is associated with Deutschmann's name. The other contains a number of objections to the theory.

It has been urged that the migratory theory cannot be true, for sympathetic ophthalmia has occurred even when at a very early stage the nerve was divided and a considerable portion of it removed. Deutschmann explains such an event by saying that microscopically he has found that the two ends of the cut nerve become united together by a band of fibrous tissue.

As to the remarkable fact that micro-organisms are not found in the sympathising eye, the author states his belief that our methods of investigation may not be adapted for their discovery. Quite recently he has found micro-organisms in five eyes which he had removed for sympathetic ophthalmia. In one of these cases, it is interesting to note that the micro-organisms were found in the capsule of Tenon. This observation receives additional importance from the fact that in panophthalmitis it is perfectly safe to leave the eyeball alone, but enucleation is often productive of meningitis or secondary abscess. Years ago Snellen pointed out that where disaster followed it was probably due to absorption from Tenon's capsule.

Schmidt-Rimpler has suggested that in those cases of sympathetic ophthalmia brought about artificially by inoculation, that the real cause of the infection was a general, not a local condition. Deutschmann has, in a number of rabbits, produced a general infection by inoculation, and has not found microbes in the optic nerves in a single instance.

In one case, Deutschmann was attending a man with sympathetic ophthalmia who died of cancer in the stomach. The chiasma and optic nerves were found to contain numerous bacilli.

The argument of Greeff's paper is not very clear, nor are his facts well stated. It seems, however, to contain a good epitome of all that can be said against Deutschmann's views.

Instantaneous Photography of the Fundus of the Eye.—Guilloz, who is in charge of the Medical Physical Laboratory at Nancy, describes, in the current number of *Landolt's Archives*, a very simple and without ingenious method of photographing the fundus. It is based on his method of binocular examination by the indirect method, which he described in the same *Archives* for April, 1892, and to which we at the time drew attention. Guilloz's method seems to be very much simpler than any method as yet described, and promises to be of great clinical value.

Remarks upon Retinoscopy have recently been contributed to *Knapp's Archives* by Dr. John Dunn.—It is gratifying to find this author describing it as an "altogether reliable method," although we cannot agree with him that the refraction can by it be tested to $\frac{1}{2}$ D. Our special purpose in mentioning this paper is because it deals with a class of cases in which retinoscopy is found to break down even in skilled hands. These cases must have occurred to every one who is in the habit of using this method. Dr. Dunn refers specially "to those cases where, in applying the shadow test, we get a confusion of shadows, so that after we have obtained the shadow in all directions that should mark the turning point, we find that it requires a whole additional dioptric, or perhaps one and a half, to reverse the shadow." On placing before the eye the glass indicated by retinoscopy, it is found to suit not so well as some other.

The author quotes several cases which have come under his own observation. The shadow test in a patient 31 years of age indicated emmetropia, but the V.A. was less than $\frac{1}{3}$. On again examining the patient he found, in addition to what may be called the general reflex of the eye, going from one side to the other of the pupil, a smaller reflex affecting only its centre. On correcting for this, he found it to differ considerably from the general shadow, and ultimately the result obtained for this secondary shadow gave $\frac{1}{3}$ Snellen.

While acknowledging that the facts are no doubt as narrated, yet we cannot help thinking that the explanation given of these phenomena is erroneous. Dr. Dunn believes that in these cases the centre of the lens is more dense than the periphery. Our objections to such an explanation are, briefly, these—(1) It is believed that the centre of every lens is denser than the periphery, and these shadows are not found in all cases; (2) in the observations to which we are referring a concave mirror has been used. Hence, even in the widest excursions of the mirror, the light reflected by the fundus would form a secondary pencil, the axis of which would approximately pass through the centre of the lens. We think a much more likely explanation could be founded on a theory of some peculiarity of the anterior or posterior surface of the cornea at its very centre. Further, such a theory might be capable of proof by a Helmholtz ophthalmometer.

A Case of Glaucoma.—Eliasberg, in the *Archiv. d'Ophthalm.* for August, 1893, briefly reports a case of glaucoma occurring in a person 20 years of age. The disease had probably been present at 15. From the facts as related, there can be no doubt whatever that the case presented all the symptoms of glaucoma. The conclusion is most justly drawn that in this case at any rate the disease cannot have been due to senile changes in the sclerotic.

Unfortunately no information is given as to the condition of the filtration angle except that the pupils were very dilated. The author is also silent as to the condition of the refraction and size of the cornea, two factors which at any rate are always of importance in considering the aetiology of glaucoma.

The Origin of Choked Disc.—Bramann (*Archiv für Klinische Chirurgie*, 1893, Band xlv, Heft 2), after describing two successful cases of operation for cerebral tumour, discusses this question at some length. Papillitis, he says, is almost invariably present in cases of cerebellar tumour. Neoplasms in the frontal, parietal, and temporal regions cause a milder grade of the same condition, these differences being explainable on anatomical grounds. The venous blood of the fundus is carried by the ciliary veins into the cavernous sinus directly or by way of the superior ophthalmic vein. The ophthalmic veins empty principally into the cavernous sinus, but some of their blood passes into the anterior facial vein. Any interference with the return circulation, by pressure on the central vein of the retina as it accompanies the optic nerve, or on the cavernous sinus, will bring about a venous hyperæmia of the disc.

The sinus is so well protected in its membranous envelope that a great

increase in the intra-cranial pressure, or a force acting almost perpendicularly from above downward—*e. g.*, a tumour of the base—is necessary to cause sufficient pressure to give rise to symptoms. An increase of pressure, however, is felt much earlier by the veins accompanying the optic nerve, which lack the complete protection of the dura, and, moreover, rest directly on the base of the skull. Hence the choked disc, in association with cerebral tumours, especially those situated near the convexity, is due primarily to pressure on these veins, and only secondarily to pressure on the cavernous sinus. The stasis produced by even a remote tumour is naturally more intense the nearer its situation to the base of the brain, and it reaches its highest degree when the ophthalmic veins are directly compressed at their point of entrance into the sinus.

Tumours in the median line, or of very large size, produce bilateral choked disc. In such cases the localisation of the new growth is very difficult, as the same condition is produced by cerebellar tumours. According to the author, an important point in the differential diagnosis is the presence of hæmorrhage and ecchymoses in the retina and choroid. These are only met with in connection with tumours near the base of the frontal lobe, and are never seen in cases of cerebellar growths, no matter how advanced.

The author also offers an explanation of the choked disc resulting from cerebellar tumours, and from other affections of the posterior fossa of the skull. The blood from the orbit and bulb flows into the cavernous sinus, and thence into the superior and inferior petrosal sinuses. The former of these, running along a groove on the petrous bone, enters the lateral sinus where it leaves the tentorium. The latter flows backwards to the jugular foramen, while a third, but inconstant channel, conveys blood to the anterior spinal plexus. The inferior petrosal and basilar plexuses lie in shallow bony grooves, and are thus easily compressible. The lateral sinus, so far as it occupies the sigmoid fossa of the temporal bone, is less resistant than the tentorium, which membrane separates more or less completely the posterior from the middle and anterior fossæ of the skull. A tumour or an abscess developing beneath the tentorium, even if small, will produce a more marked increase of pressure than similar affections of the hemisphere. This rise of pressure extends to the brain and its membrane, to the lateral sinus, and to the two other feebly protected sinuses. The result is stasis in the cavernous sinus, and then in the fundus oculi. Tumours of the occipital lobe, by downward pressure on the tentorium, also produce choked disc, which, as in almost all cases of tumour of the hemispheres, is more marked on the one side. Affections of the temporal lobe are very variable in respect to the production of choked disc, and it has been generally supposed that this condition is rare. But if we exclude the more common disease of this region—*viz.*, abscess following middle-ear disease, we shall find that the condition in question is by no means rare, though not so common as might be expected from the proximity of the lobe to the cavernous sinus. The explanation is to be found in the fact that the sinus is exceedingly well protected against lateral pressure by the enclosing dura, and still more by the processes of the tentorium attached to the anterior and posterior clinoid processes.

The more anteriorly a tumour of the temporal lobe is situated, the greater will be the difference in the degrees of stagnation in the two eyes. If the tumour is located at the base of the third frontal convolution, compressing the optic tract and its vessels, we shall find a choked disc in the corresponding eye only. The degree of the choked disc depends not so much upon the size of the tumour as upon its structure and mode of growth. Circumscribed tumours produce more marked symptoms than abscesses and diffused growths, which form at the expense of the brain mass.—(*American Journal of the Medical Sciences*, July, 1893.)—T. K. M.

Cryptophthalmos.—Fuchs recently showed a case of this kind—the fourth on record—to a medical society in Vienna. The patient was a child two days old, born of healthy parents. The skin covered the eyes completely, leaving no palpebral fissure. There were neither eyelashes nor eyebrows, and,

on careful palpation, no tarsus could be felt. On the other hand, orbicularis fibres were present; for, when a strong light was thrown on the part, the skin covering the eyes was thrown into wrinkles, thus showing that the bulbs were sensitive to light. The child had also syndactyly and phimosis. —(*Deutsche Med.-Zeitung*, 22nd June, 1893.)—T. K. M.

Retinal Hyperæsthesia of Cerebral Origin.—Freund calls attention to a hitherto undescribed anomaly of vision which supervenes in some traumatic neuroses. It consists in a well marked enlargement of the visual field for white and colours. Blue, red, and even green are seen beyond the usual limits for white. This symptom was well developed in a case of traumatic hysteria, in which the visual field was examined many times, always with a like result. There was also present hyperæsthesia of the other senses, with some areas of cutaneous hyperæsthesia; hysterogenic zones were likewise discovered. On the other hand, there was no ocular lesion. In the author's opinion, these phenomena ought to be discoverable in other irritative conditions of the cerebral cortex. —(*La France Médicale*, 24th March, 1893.)—T. K. M.

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ORIGINAL ARTICLES.

ON MEDICAL EDUCATION.*

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GENTLEMEN,—It has fallen to my lot this year to deliver the usual introductory address before you here in St. Mungo's. And in accepting this charge, I feel that I have undertaken what to me is a most difficult task—difficult from two causes. In the first place, my connection with this school has hitherto been an exceedingly brief one, so that I have hardly as yet had time to become myself an integral part of its constitution. I feel like a graft that has not yet had time to grow. In the second place, so young a medical school as our College is can hardly as yet be said to have any history. Our calendar informs us that the Glasgow Royal Infirmary Medical School was first opened in the year 1876, and we have, therefore, not as yet attained our majority, though there are doubtless many and unmistakeable signs that we are fast approaching to years of discretion.

Now, gentlemen, in an introductory address under such circumstances as these, the lecturer is deprived of one fertile resource for the exercise of his fluency which at an old-

* Address to the Students of Medicine of St. Mungo's College, Glasgow, 18th October, 1893.

established school he is enabled to draw upon to an almost unlimited extent—I mean that he is unable to go back into the past, and to bring forward a long roll of names of former medical and surgical celebrities who, in days gone by, have brought honour and reputation to their school, and after pointing many a moral, by anecdotes of these worthies, to conclude with an adjuration to the younger members of his audience, “Go ye and do likewise.” But this very youthfulness of our College, this want of history, is, I think, by no means a disadvantage to the present members of our Society. At all events, gentlemen, we here are not eclipsed or overshadowed by any names so great that our courage need fail at any thought of emulation, and it is open, therefore, to each one to make at the same time a name for himself and a reputation for his college.

That there are some here who will do so I feel certain, and I trust that before long the useful work done by this school in its connection with the Royal Infirmary—an institution which, I need hardly remind you, was the birthplace of modern aseptic surgery—will be more widely recognised and better appreciated by the wealthy and munificently disposed in this great city. Glasgow may, like Edinburgh, be proud of her University, but Glasgow should also be proud, as Edinburgh is, of her extra-mural schools.

It can, perhaps, be hardly too strongly insisted upon, that the existence of this school is of the utmost value to the Royal Infirmary, and that without the school the Infirmary would be very seriously and permanently crippled in the charitable and noble work which it is performing in a densely populated district. It is hardly necessary here for me to explain the close connection which exists between our college and one of the largest hospitals in the kingdom, and how the welfare of the latter is dependent in a great measure upon the success of the former, but I would refer those who are anxious to know more of this subject to the history of St. Mungo’s given in our college calendar.

Now, gentlemen, in an address to medical students such as this professes to be, it may not perhaps be out of place if I attempt to discuss one or two of the many vexed questions connected with the subject of medical education. As teachers, we have to bow before the wisdom of that august body, the General Council of Medical Education, and to accept without murmur whatever changes they may be pleased to decree in the curriculum.

You are aware, of course, that a great alteration in the

length of that curriculum has lately been made, and that, instead of four years, a five years' course of study is now compulsory upon all students before obtaining a qualification to practise. The effects of this change have been evident in a general decrease in the number of entries at the various medical schools throughout the country, and it is unfortunate, for us teachers at any rate, that such a change, accompanied as it has been by a more or less general rise of fees, should have been introduced during a period of great commercial depression.

But, as I hinted just now, medical schools do not exist merely for the benefit of their teachers, and there can be no doubt that the additional year's study will be to the advantage of the student as well as to that of the general public, who will hereafter entrust their health and their lives to his care. Now, whilst I fully approve, under existing circumstances, of the extension of the curriculum to five years, I think it would have been well if at the same time so great a change was introduced, more stringent regulations had been laid down as to the manner in which those five years should be spent. Thus, while allowing five years to be the minimum time in which it should be possible to obtain a diploma, I would have imposed also a certain time to elapse before each examination, such time to be occupied exclusively in preparation for that examination and for no other. By these means I would make sure that a proper time had been spent in the preparation of each subject, and would thus put a stop in a great measure to that dangerous "spurting" by the aid of cramming during the last year or two of the curriculum to make up for lost time.

A student's career should resemble that of a well regulated train, calling at every station at its appointed time, not rushing up two or three hours late at the last stopping place, and then hurrying off at a headlong and dangerous speed with the steam roaring at the safety valve, to reach the terminus at the hour when the journey ought to be completed.

And talking of limitations of time for examinations brings me to the subject which I had in my mind when I proposed to discuss one or two points connected with the education of medical students, and I cannot help thinking that some still further limitation is urgently needed, such that it should be impossible for a student to enter the profession until a certain age has been attained.

Now, a short time ago a writer in one of the medical journals, himself a teacher in one of our universities, complained bitterly of the low standard of general education amongst

medical students. His letter led to some discussion on the subject, and the blame was finally placed, if I remember rightly, not on the universities, not on the General Medical Council, not on the various bodies who undertake the examination in arts of medical students, but if you please, upon the English public schools.

This, I would submit, is placing the saddle entirely upon the wrong horse, since, in the first place, comparatively few of the great bulk of medical students are drawn, even in England, from the public schools; and, in the second, place if this were not so, owing to there being no regulation as to the age at which students can enter the profession, a great many have already completed the major part of their curriculum at an age when they would still be deriving benefit from the discipline of a public school. The fact that cases are continually occurring of a student having passed his final examination, but being unable to obtain his diploma on account of his being under legal age, illustrates my case. Such an one, even under the four years' curriculum, must have entered the profession and commenced the unrestricted life of a medical student; in other words, must have become his own master at far too early an age.

It has, indeed, long been a wonder to me that so many parents are willing to send their sons, while yet so young, to a medical school, and to allow them to live with no restriction or supervision, exposed to the temptations of a large city. And yet teachers are found who complain of the low standard of general education. Can this low standard be wondered at? On the contrary, it would be a very great wonder if it did not exist.

Can any one pretend that a lad of 16 or 17 years of age who is leaving school, and perhaps not from a very high class in that school, has received such a liberal education as will qualify him for entrance into one of the so-called learned professions? In some cases, no doubt, he leaves school at even a more tender age, and passes a year or so in the hands of some reverend crammer, and by him is duly crammed through one of the preliminary examinations, and this constitutes his liberal education!

"How," you will ask, "can such a state of affairs be remedied?" Certainly not by any mere raising of the standard in the entrance examinations. The simple fact of having passed an examination in Arts, however difficult, is not in itself any evidence of having received a liberal education, and to merely raise the standard of such examinations would

be to play into the hands of the crammers. It is not merely the possession of a certain amount of knowledge in such subjects as classics, mathematics, history, &c., which will properly equip a student for his professional work; it is the training he has undergone in acquiring this knowledge in a proper way, and not in having it crammed into him in a few months, which constitutes a liberal education, and is likely to be of value to him in after life. Perhaps it would be as well to define here more accurately what is meant by a liberal education. I will quote, therefore, the words of one of the deepest thinkers of the century on this subject:—"That process of training by which the intellect, instead of being formed or sacrificed to some particular or accidental purpose, is disciplined for its own sake for the perception of its own proper object, and for its own highest culture, is called a liberal education." Now, such an education, such a process of training, can never be ensured by the mere passing of an examination. Surely it is somewhat anomalous that all the examining bodies who grant licences to practise should lay down more or less stringent regulations as to the course of professional study which must have been pursued, while they allow the greatest possible latitude as to the manner in which the general education of their candidates shall have been conducted. Thus, we find that so many months must have been spent in attendance upon anatomy lectures, so many on physiology, &c., &c., and yet the preliminary education so important in itself may have been acquired anyhow, so long as a certain examination has been passed, and you are, all of you, familiar with that long list of examinations which are recognised as qualifying examinations in Arts.

Now, this is scarcely consistent! The examining bodies, in laying down these regulations, have decreed that it is not sufficient for a student, when he comes up to be examined, to exhibit a certain amount of knowledge, but they require, in addition, certificates as to how that knowledge has been gained. They require him to be "signed up," as the expression goes, for attendance upon a certain number of lectures, and for a certain amount of practical work performed under the superintendence of a recognised teacher. In other words, they try to ensure, as far as possible, that in his professional education the student shall have undergone a certain process of training, but as regards the general education of their candidates, they are content to let the matter be settled by the mere passing of any one out of a long list of examinations.

Now, I am certain that every one who has been brought

much into contact with medical students, will agree with me that there is the widest possible variation in their attainments as far as general knowledge is concerned, and that the present state of affairs with regard to their preliminary education is eminently unsatisfactory. But it is an exceedingly difficult problem to solve to say how matters could be improved. The first step would, I think, be the fixing of an age limit, and it would be very easy to insist that evidence of having attained a certain age should be produced when first registering as a medical student. What that age should be I would not venture to suggest, but I think there is much to be said in favour of its being advanced considerably beyond the present average. It would no doubt be of great advantage, both to the students themselves and to that of the medical profession generally, if the only entrance to the profession were a degree in arts from a recognised university. But such a regulation as this might perhaps be too severe, and might be held to entail somewhat of a hardship.

Could we, then, without going quite so far as this, ensure that every student, before commencing his professional studies, shall, in addition to merely passing an examination, have undergone a more or less definite training in arts? I think that this might be possible. We may divide the whole community of medical students into two classes—Firstly, those who, at the outset of their career, have become members of an university with a view to becoming possessors of that much coveted degree, M.D.; secondly, those who are only working for the licence, and to whom a degree, whether in arts or in medicine, is either no desideratum, or else is quite beyond their power to obtain. This latter class is more numerous in London than here in Scotland, where the facilities for obtaining a degree in medicine are more numerous, and the regulations less exacting. Now, with regard to the former class—namely, those who at the outset of their career have become members of an university, I do not think any hardship would be entailed had they been compelled to go through that course of training which qualifies for a degree in arts of their university, before commencing their medical studies. In other words, I would make a degree in arts compulsory upon all candidates for a degree in medicine or surgery, and I would undertake to say that under such circumstances there would not be one medical graduate of five years standing out of a hundred who would, upon looking back, consider that the time spent over his arts course had necessarily been wasted.

But with my second class of students, who are not members of any university, the problem is much more complicated.

We cannot, as I say, compel them to go to the universities for their general education, and at the same time we are not justified in assuming, because they can produce evidence of having passed a certain examination, that their preliminary education has been such as is desirable for members of a learned profession.

There only remains, then, it appears to me, one possible alternative, and that is to approximate, as far as possible, the preliminary training of intending medical students to that required for the arts degree of some university. Thus, in place of one examination, to substitute several, and to ensure that a certain time shall elapse after one examination has been passed before admission to the succeeding one; to require evidence not only of having passed examinations, but of having undergone a certain definite course of training; and, at the same time, I am of opinion that greater inducements should be held out to students to more thoroughly prepare themselves for their professional training by undergoing a course of instruction in arts at an university.

I am aware that some concession is already made to graduates in arts and science, who shall have spent a year in the study of physics, chemistry, and biology, and shall have passed an examination in these subjects, by allowing them to count one year of medical study; but such a meagre concession as this is not likely to have much effect in drawing students to the universities, and no doubt it is not intended that it should. In London, you know the great bulk of medical students labour under the disadvantage of having no university available which will grant them degrees upon similar terms to those on which these are obtainable from the Scottish or Irish Universities; and to remedy this, it has been proposed to create what I may call a skeleton university, which shall grant degrees to this large body of students without materially altering that course of study which now qualifies for the licence. In other words, because the students at the outset of their career have not gone to the universities, a new university is to be created and brought to the students. Now, I cannot think that they who are advocating this scheme are doing so from entirely disinterested motives.

The value of an university degree has generally been considered to depend upon the fact that it entails a certain period of residence, a certain course of instruction and discipline. We must, of course, make an exception—that exception per-

haps which proves the rule, in the case of the University of London, the value of whose degrees rests solely upon the high standard of the examinations. But in this proposed university neither was the standard of the examinations to be so high as that of the present London University, nor was any discipline or training to be required further than is already necessary for the licence.

I am strongly of opinion that if greater inducements were held out to medical students to go in for an arts degree at one of the numerous existing universities, and if, at the same time, the course of preliminary instruction for those who are not members of an university were more closely approximated to that required for such a degree, the demand for new universities would very soon cease to exist, or, at all events, would be very considerably diminished.

The objection, moreover, which is sometimes urged that the older English universities require an expensive residence to qualify for their degrees has really ceased to have any weight, since the institution of what are now known, both at Oxford and at Cambridge, as unattached students.

There are some here no doubt who will be inclined to think that I am placing too much stress on the value of a liberal education to a medical practitioner. "Of what use is it," they will say, "to us to have spent so many years in the study of classics, mathematics, philosophy, &c., if we cannot make use of them in our professional work? All the classics in the world will not teach us how to set a fracture, nor all the mathematics how to treat a case of typhoid."

But they forget that the medical practitioner has other than merely professional duties to perform, that he is brought into contact with members of other professions, that he becomes their friend, and very often their confidant; and that it is to his advantage to become not only a skilful practitioner, but a wise and useful citizen.

That man who has received but little education beyond his professional training, no matter how clever he may be, no matter how successful in his treatment, is in great danger of becoming merely what I may describe as an automatic guinea-in-the-slot machine for the cure of diseases.

"I have read," says Sir William Dalby, in Dr. Chesterfield's letters to his son, "many charmingly written articles and books on surgical matters; but I have also, for my sins, waded through some others that have positively made me shudder. For lumbering, blundering sentences; for hideous grammatical errors; for long paragraphs, whose construction

almost makes one giddy; for the jumbling together of a number of Latinised words, and a complete absence of pure English, commend me to the effusions of an illiterate surgeon."

Leaving now, gentlemen, the question of general education, let us turn to the consideration of a point in what perhaps more nearly concerns us—the scientific education of medical students—and we will confine ourselves to considering the teaching of anatomy. Now, there is a subject taught in all medical schools which, on this side of the Tweed, has been dignified by the title "institutes of medicine." In the south they are content to use the simpler name "physiology." I much prefer the former title, since there can be no doubt that the essential basis of modern medicine is founded upon a sound knowledge of physiology.

But, as it is impossible to be a good scientific physician without a very considerable acquaintance with physiological principles, so it is equally impossible for a man to become a sound and trustworthy surgeon unless he have at his fingers' ends a very accurate knowledge, not of what is now taught in the schools under the name of anatomy, but of a particular kind or branch of that science to which I would like to give the name "institutes of surgery."

Now, why is it that at the final examinations so many men come to grief over what is known as surgical anatomy? They have spent one, two, or even three years in attendance upon anatomy lectures, and upon classes in the dissecting room, and what, I would ask, is all their anatomy worth if it is not surgical? The time so spent can hardly be considered as being very productive. Now, in the early part of this century, when the University of Oxford began to wake up from a long period of neglect, and to form plans for the education of the rising generation of that period, a sharp controversy took place between the leading men in the educational world of Edinburgh on the one hand, and those of Oxford on the other. In the north they were all for utility in learning. They held that education and instruction should be made "useful," and that no knowledge was worth having if it were not directed to some particular end or object. Now, let us see how far this doctrine has been applied to the teaching of anatomy. Either, following the Oxford view that knowledge is valuable for its own sake, and, as a process of training, we must consider that the discipline and training involved in learning anatomy have their own intrinsic value, or else we are driven to the conclusion that the only end and object of anatomy is

to form a basis upon which to ground a sound knowledge of surgical principles.

Now, I do not imagine that even the most enthusiastic anatomist would ever dream of proposing that the study of anatomy should form part of the education of those who are destined to become advocates, ministers or commercial men. In other words, would consider that the study of anatomy has any appreciable value as a process of training.

If, indeed, it were possible that every student could be made a scientific anatomist, the training necessary for such an attainment might not be without its value. But this is absolutely out of the question.

The time at the disposal of an ordinary medical student is far too short to allow him to obtain anything more than the merest insight into what may be called scientific anatomy—and by scientific anatomy I mean a knowledge not only of the human body, but of the anatomy of the whole animal kingdom of development and morphology. Such a training, to be of any value, would occupy more time than the whole of even the five years' curriculum. Consequently, as anatomy cannot be held to form part of a medical student's education on account of any mere value it may possess as a process of training, we must conclude that it is intended to afford him such a knowledge of the human body as will assist him to comprehend and appreciate the origin and course of surgical diseases, and the why and wherefore of modern surgical methods of treatment.

Now, is this the case? Is anatomy such as is now taught in our dissecting rooms, and such as is now required by the examining boards, of this nature? I think not. I imagine you will agree with me when I say it is the rarest possible thing to hear a fact in anatomy dwelt upon in the dissecting room on account of its surgical importance, whilst on the contrary many of the "catchy" little bits of anatomy, if I may be allowed the expression, which are so often insisted upon have no surgical meaning whatever. And the same is the case with the examinations. Much of the knowledge a candidate is expected to show is such as can have no connection with surgery, at all events in the present state of that science, and such as he may forget with the greatest advantage the moment he has passed his examination, and such as he will never need to recall throughout the whole of his professional career, yea, even if he become the greatest surgeon and operator the world ever saw. And in the majority of cases he does forget it with the most marvellous celerity! But he forgets also what little he

has learned which is of importance. The huge bolus of undigested anatomical facts acquired by the student when preparing for his primary examinations is far too unwieldy a mass ever to become properly assimilated, and to form part, as it were, of his daily life. Having no knowledge of surgery at the outset, he has never learned to separate the wheat from the chaff. He has never had pointed out to him the surgical bearing of anything he has learned, and if he be a man of an enquiring turn of mind, and devoted to work, he is prone to give far more attention to such minutiae as the communications of the sympathetic at the base of the skull or the exact distribution of the petrosal nerves, than to the position of the interphalangeal joints in the hand, or the precise situation of the femoral artery in the thigh.

I have myself had, perhaps, more than usual facilities for estimating the anatomical knowledge of students preparing for examinations in surgery, and I have almost invariably found that the facts they remembered best were such as are of but slight surgical importance, if any. Now, in many schools anatomy is taught by scientific anatomists who, I will not go so far as to say are entirely ignorant of surgery, but who, I am quite safe in asserting, care little or nothing about it.

They love their science, and would make the best possible teachers if the students under them were destined to become scientific anatomists like themselves, but for one student who is so destined, nine hundred and ninety-nine are intended to become medical and surgical practitioners; and to such, I would submit, anatomy should be taught mainly from a surgical point of view. Every sailor in our mercantile marine who is a candidate for a Board of Trade certificate as master or mate is required to exhibit sufficient knowledge of nautical astronomy to enable him to ascertain the position of his ship when at sea, by an observation of the sun at noon or of a star by night.

But it would be absurd to insist that such men should have been taught their little bit of astronomical science by skilled astronomers from an observatory, or that they should have undergone such a course of instruction as should enable them to compute the orbit of a comet, or to take observations with a transit instrument. Would you depute an Edison or a Kelvin to teach the single needle code to a lot of telegraph clerks?

And so it is with the examinations. As I said just now, a vast amount of anatomical knowledge is insisted upon by

examiners which is utterly useless to the candidate, and it is this fact that has fostered the system of cramming.

I am strongly of opinion, gentlemen, that, having regard to the rapidly increasing amount of knowledge which it is absolutely necessary that a student must acquire, a little local blood-letting in other directions will soon be needful, and that it is high time that the character of our examinations be considerably altered.

And so I would suggest, among other alterations, that the anatomical problems which are put to candidates shall have more bearing than is now the case upon the science of surgery. Should this ever come to pass, as I sincerely hope it may, then will anatomy truly become what, in my humble opinion, it ought to be—namely, the institutes of surgery, and the labours of the student will not only be lightened, but will be made more useful and more entertaining.

The almost daily additions made to our knowledge in medical and surgical science, our wider knowledge of disease, our numerous methods of treatment, are adding continually to the huge mass of information awaiting the future student.

The receptive capability of the average human mind still maintains its limits, and unless the curriculum is to be indefinitely prolonged, the pruning-knife will have to be applied somewhere.

I have here attempted to indicate one direction in which the said knife might be applied, one branch of which, I think, might with advantage be lopped off. Others will no doubt occur to my hearers. It is out of my province to attempt to discuss such a subject, for instance, as the teaching of *materia medica*, but I have a strong suspicion that here, too, a useless burthen is imposed upon the students' memory.

It may not be out of place here to call attention to the fact that in many cases the attainment of a qualification by no means enables the student to commence his professional life. If he aspire to the services, further examinations are before him; if he wish for a public health appointment, the additional necessary qualification will have to be obtained.

The conditions of our modern social life will not admit of the period of apprenticeship being prolonged much beyond early manhood. Every year, therefore, added to the curriculum means an earlier entrance into the profession—a year lost to the general education—another fee into the pockets of the crammers.

And now, gentlemen, after what I have just said, it may be as well to utter a word of warning to the younger members

of my audience. While I am no enthusiast revelling in the multiplication of dry anatomical facts, splitting up ligaments by the application of fantastic terms to scarcely distinguishable parts, or ruthlessly inventing new names in the places of those already grey with age, it is far from my wish to depreciate in any way the value of anatomy when considered as the handmaid of surgery. Without anatomical knowledge the man who would undertake to remove a tumour, to reduce a dislocation, or to perform the simplest surgical operation, is not one whit superior, in spite of all his qualifications, to the veriest bone-setter who, by a lucky wrench, chances to force a bone into position, perhaps after the most skilful performers have tried in vain.

In conclusion, it remains for me to congratulate those who are to-day commencing their medical education in this college, upon their choice of a school. They will here enjoy advantages which, I will undertake to say, are not equalled by any other medical school in the kingdom. On the one hand, their school is a young one, and the number of students as yet comparatively small, so there is no overcrowding. On the other hand, their hospital is one of the largest in the country, and the supply of clinical material provided is practically inexhaustible.

I would impress upon them that their object should be not merely to acquire sufficient knowledge to enable them to obtain whatever degrees or diplomas they aim at; not merely to get qualified, but to learn how to become their own teachers; to learn to observe for themselves, so that, in one sense, they may remain students all the rest of their lives. And this habit of independence, this power of teaching one's self, can nowhere be so easily acquired as in the wards of a hospital. There is a tendency at the present day, I am afraid, amongst students to depend too much upon their teachers; to accept what they say as gospel; to learn nothing but what their lecturers tell them; and to make no attempt to verify statements or to observe for themselves.

And perhaps, in the keen competition between different schools to attract students, the teachers themselves are responsible to a certain extent for this tendency. The desire to show a brilliant pass-list from their school, to diminish the percentage of rejections, has developed in many cases a series of compulsory tutorial and other classes which approach dangerously near to a system of cramming, and which, though they may be to the advantage of the school, are of very questionable benefit to the student. That this system enables

him to pass his examinations is no doubt the case, but that it develops a proper habit of independent observation, a facility for teaching himself is, I think, very dubious; and so I would say to those who are here to-day commencing their career—"Learn to observe, to think for yourselves; take nothing for granted that you have any opportunity of verifying; become as far as possible your own teachers."

And for this end there awaits you in the hospital an unsurpassed feast of clinical material. Gentlemen, don't wait to be asked what you will take. Help yourselves!

VARIOLOID OR VARICELLA?*

By JOHN C. M'VAIL, M.D., D.P.H. CAMB.,

Medical Officer of Health of the Counties of Stirling and Dunbarton.

HAD this question, varioloid or varicella, modified small-pox or chicken-pox, been propounded in Edinburgh some seventy or eighty years ago, it would at once have given rise to a fundamental dispute as to whether the two diseases were not essentially the same. On the one side, Professor Thomson would have held that they were identical, and would have supported his view by an enormous amount of learned research, in which he would have demonstrated that in past centuries a number of vesicular diseases had existed, which had been named "horn-pox," "nirle-pox," "wind-pox," "water-pox," "stone-pox," and "chicken-pox;" and he would have urged that all these various poxes, including chicken-pox, were simply small-pox, modified at that time either by small-pox inoculation or by previous unrecognised attacks of mild small-pox in infancy. He would, however, have been replied to on the opposite side by Hennen, who had had large experience in the army, and by Gillespie and Bryce, surgeons to the Edinburgh Poock Institution, the latter the well-known author of "Bryce's test" for successful vaccination. And if Brown of Musselburgh had been present at this discussion, he would have held that whether the disease were chicken-pox or mild small-pox, vaccination had little or nothing to do with the matter, as its influence was of a very fleeting character. In the short time at my disposal, however, I do not propose

* A paper read before the British Institute of Public Health, at Edinburgh, 31st July, 1893.

to discuss this question, but to assume that chicken-pox has an existence separate from small-pox; that it is a disease *sui generis*; and that its chief interest for us in the present day is the possibility of its being confused with small-pox modified by Jenner's prophylactic. One of the best writers on small-pox, from a clinical point of view, tells us that its diagnosis from chicken-pox should never be difficult. In practice I confess that I have not found this.

During a recent prevalence of small-pox in Dunbartonshire I have, through the medical practitioners in the county, had an opportunity of seeing a number of cases in which the diagnosis was looked on as doubtful. One of these was that of a girl, aged 18, who sickened on the evening of 27th May last. She had never suffered from small-pox. She had been vaccinated in infancy, and showed a well foveated scar about a square inch in area. The medical attendant—a most competent practitioner—had at first looked on the case as chicken-pox, but had afterwards seen reason to doubt his own conclusion, and wired to me to see the patient on 31st May. A very suspicious fact was that the girl wrought in a large public work, among whose employees almost every case in the locality had up to that time occurred, and that she wrought in a particular department of that work in which a number of the cases had originated—that department being in the habit of regularly receiving goods from Manchester, where small-pox was prevalent. She was, moreover, long past the age at which chicken-pox is likely to occur, and she had been so well vaccinated that one would only expect in her a very modified attack of small-pox. Nevertheless, I concluded that the disease was not small-pox but chicken-pox; but as the case was certainly a very difficult one, I was glad to have the opportunity of showing it to Dr. Chalmers, the colleague to Dr. Russell in the Glasgow Health Department, who had seen nearly all the cases of small-pox, or supposed small-pox, that occurred in the recent Glasgow outbreak. Dr. Chalmers agreed with me that we had to do, not with varioloid, but varicella, and having formed our opinion, I determined to act on it, though the decision was rather a momentous one, as the girl was living in a house of one apartment in a tenement of similar small houses. If the case was small-pox, it was my duty to have her removed at once to the hospital, and to have every one who had been in contact with her, or who resided in the tenement, vaccinated. On the other hand, if it was chicken-pox, it would not be right to expose the girl to the chance of catching small-pox in an hospital, and the precau-

tions as to persons who had been exposed to infection were unnecessary. In the circumstances, there was an admirable opportunity of deciding the question, though the experiment—if such it may be called—was an anxious one. When the girl took ill she had been staying in another house, and had been, while still able to move about, removed to the one-roomed house already mentioned. In the two houses she had been in direct contact with seven people. Two of these were babies who had recently been vaccinated, the others were children and adults who had not been vaccinated since infancy. If the case was chicken-pox, the two recently vaccinated babies would not be in the least protected against it, and would have every chance of being attacked; while the older persons, either by reason of their age, or of previous attack by chicken-pox, would be likely to escape. If, on the other hand, the case were small-pox, the two babies would be safe against it, and some of the adults would be pretty sure to have a mild attack. On revisiting the two houses a fortnight later, I was very relieved to find that the two babies were suffering from well-developed eruption of chicken-pox, and that all the others had escaped attack of any sort.

Regarding the diagnosis of this particular case as varicella rather than varioloid, I shall not adhere to the sequence of events, but shall note first the point which interested me most. One of the principal reasons for causing a temporary doubt, and leading to a suspicion that the disease might be varioloid and not varicella, was the existence of a central depression in some of the vesicles. In regard to other cases which I have seen, the same appearance has given rise to the same doubt. Here it seems to me of essential importance to note the time at which this central depression shows itself. It is often said that in varioloid some of the pustules are umbilicated, and others are not, and that regarding varicella the same statement may be made. This is so far true, but I am inclined to think that in most cases it is only a half truth. In varioloid the umbilication exists in the early stage of the vesicle, and disappears when complete suppuration takes place, the band or "bridle" giving way which up to that point had held down the centre of the vesicle, and so produced the characteristic depression. In varicella exactly the opposite course is followed. At first there is no central depression; the vesicle consists of a single blob, smooth and rounded on the surface. But the stage of desiccation begins very early. It begins, moreover, in the centre of the vesicle, and at first is represented by a little dark dot. The desiccation also

produces at the same point slight central depression, and, so far as my own experience goes, this has been the commonest cause of confusion between small-pox and chicken-pox. Where the disease is chicken-pox, the medical man may at first have little doubt of his diagnosis, but in the course of three or four days the first-formed of the vesicles begin to show the central depression, and the attendant begins to doubt the validity of his original opinion. He may think either that he must have overlooked the existence of umbilication on his previous visits to the patient, or else that this late appearance of umbilication is itself diagnostic of small-pox. I shall be glad to know whether the greater experience of any of my auditors enables them to be quite certain that in any case of genuine chicken-pox there is to be found the true umbilication of small-pox, depending not on incrustation of the vesicle, but on the attachment of the centre to the skin underneath.

In a number of cases I have tested the diagnostic sign mentioned in the text-books regarding the result of opening the respective vesicles with a needle, and have found it of undoubted value. In chicken-pox the covering of the vesicle is very thin, consisting only in the outer layer of the epidermis. In small-pox, on the other hand, it is fairly thick. The result is that when the contents of the chicken-pox vesicle are allowed to escape, it at once collapses. On the other hand, when the contents of the small-pox pustule are let out, the covering remains prominent, leaving an empty space underneath rather than flattening down on the skin. In the chicken-pox vesicle, when you insert the needle, you can without difficulty tear back the skin and leave the surface underneath exposed. When you try to do this with the small-pox pustule, the covering is found to be resilient, and to be apt to spring back to its original position like the torn edge of an india-rubber ball, and so to form a little arch over the empty cavity. Regarding the surface exposed to view in the two vesicles, in chicken-pox it is smoother and likely to be red in colour; in small-pox it is more irregular, or foveated, and apt to be yellow in colour. The differences here, however, are only differences of degree, and are not to be relied on exclusively.

It is usually stated in books that the two diseases are distinguished by the small-pox pustules giving a shotty feeling when the finger is drawn over them, and by the absence of this feeling in chicken-pox. This is hardly to

be depended on. In cases of undoubted chicken-pox there is sometimes a distinctly shotty feeling indistinguishable from that belonging to small-pox.

Another of the peculiar signs sometimes given is the comparatively regular size of the small-pox pustules, and the very irregular size of those of chicken-pox. But in small-pox the pustules often vary greatly in size in the same cases. One or two writers, however, note a point that I have found to be borne out under observation—namely, that in chicken-pox there are usually several large vesicles on the back of the shoulders, these vesicles having their long diameter transversely. It is also stated that the small-pox pustules are apt to appear in series of three or five, or in crescents or circles, and that this is not the case in chicken-pox. This sign also I believe to be of some use. Another point is usually stated in regard to the areola: that in small-pox the areola is considerable, while in chicken-pox it is either absent or very slight. This does not seem of much value. The cases of small-pox which have to be distinguished from chicken-pox are exactly those cases which have been so modified by vaccination or otherwise that they have very little areola, if any.

Regarding chicken-pox, Cullen wrote "*tertio die incipit et quinto finitur.*" So far as this indicates that the chicken-pox vesicle runs a very short course, the stages passing more quickly than in small-pox, the statement is no doubt true; but the fact is, that one wishes to diagnose chicken-pox at the beginning, and not at the completion, of its various stages, and the statement "*tertio die incipit*" cannot be looked on as correct. Indeed, in the case which I have related, one of the chief diagnostic points was that the sickness was followed in some twelve hours by the commencement of the eruption. It is the small-pox eruption which begins on the third day, and not that of chicken-pox; the latter usually appears very early after the first symptoms of illness.

In the case which has formed the main basis of these remarks, the eruption began on the abdomen. This is of some consequence as bearing on the diagnosis. Every one knows that the eruption of small-pox usually begins on the face and wrists, while that of chicken-pox has no special site characteristic of its commencement. The fact, therefore, that an eruption begins on the face does not exclude chicken-pox, while its commencement elsewhere tends to exclude small-pox. But, no doubt, in small-pox itself exceptions will occur. In a very bad case of hæmorrhagic small-pox which I

recently saw, the eruption began in the groins and behind the knees; and, indeed, those cases of hæmorrhagic small-pox seem rather to select the flexures of the large joints. But no one could possibly mistake hæmorrhagic small-pox for chicken-pox. The crust in chicken-pox is different from that in small-pox. It is paler, and separates rather piecemeal than as a whole. But, again, this is of very little practical use, because, as I have said, one wishes to diagnose the two diseases not at the end of their course, but at the beginning. It used to be taught to us in regard to syphilis that an important diagnostic point was as to whether the chronic rheumatic pains of the late stages of the disease were cured by treatment by iodide of potassium. Such means may be of some use in a slow disease like syphilis, but would be of no avail in an acute infectious fever.

Needless to say, the systemic symptoms and the amount of eruption in the case in question were very trifling. But it would be profitless to dilate on the differences between severe unmodified small-pox and chicken-pox. It is easy to talk of the high fever, the severe backache and headache, the vomiting, the profuse eruption, and the other acute symptoms which accompany typical variola; but no one can mistake typical variola for varicella. The usual cases in which difficulties arise, and which require to be diagnosed carefully, are those in which variola has had its teeth drawn, so to speak, and has had all the virulence taken out of it by vaccination. These mild attacks, though of no consequence to the individual, retain their infectivity, and are apt to give rise to epidemics, which, in the unvaccinated or the imperfectly vaccinated, show the disease to be possessed of all its old power.

The fact is, that in presence of fairly general vaccination, the medical men who have obtained their qualification since the termination of the great epidemic of 1870-74 have had little opportunity of diagnosing small-pox, and in my counties I have impressed on those with whom I have been in contact the advisability of their paying a special visit to Belvidere, or some other hospital where a sufficient number of cases could be seen, to enable them to make a study of the appearances of the disease which would be of service to them all through the rest of their professional career.

CASE OF TRAUMATIC ANEURYSM OF THE COMMON FEMORAL CURED BY LIGATURE.*

By D. N. KNOX, M.A., M.B.,
Surgeon, Glasgow Royal Infirmary.

J. S., aged 29, butcher, was admitted into the Glasgow Royal Infirmary on 10th May last, suffering from a traumatic aneurysm of the common femoral artery. The patient was engaged at Yorkhill skinning and dressing heavy American cattle. At his work he was accustomed to use his knee for the purpose of pressing off the hide. This is done by making a rapid downward movement of the flexed right knee, while the hip-joint is in a position of extension. He was so engaged on 4th May, but felt nothing wrong till he went to bed at night, when he felt a slight pain in right groin, and discovered a small swelling at the painful spot. The pain did not prevent him continuing at his work for the next four days, but then it became so severe that he had to consult my friend, Dr. Meighan, who at once recognised the nature of the swelling, and sent the patient straight off to the Infirmary. On admission he was found to have a swelling about the size of a large egg at the upper part of Scarpa's triangle, extending along the line of the common femoral artery, and passing about three-quarters of an inch beneath Poupart's ligament. This swelling had all the characteristics of an aneurysm, and from the history and rapidity of its growth, it was concluded to be an aneurysm due to sudden rupture of the common femoral. There was no numbness of the limb, and slight pulsation could be felt in the tibials. The general condition and family history of the patient were good.

On 16th May, assisted by some of the other members of the staff, and by Dr. Alexander Patterson of the Western Infirmary, I proceeded to lay the aneurysm open, and tie the vessels above and below. This was done successfully, but not till a good deal of blood had been lost. The sac was found to consist mainly of the femoral sheath, the anterior wall of the artery itself having been burst open. The sac was very thin, and had been dissected up from the vessels below. The external iliac was tied nearly an inch above Poupart's ligament, and the common and deep femorals where they emerged from the sac.

* Read at a meeting of the Glasgow Pathological and Clinical Society, 9th October, 1893.

After the operation the patient suffered considerably from shock, the limb was very cold and slightly cyanosed, the general temperature was slightly below normal, and the pulse 100. The coldness of the limb continued for nearly 12 hours, and returning warmth was accompanied by a painful tingling sensation. For several days after the operation there was a good deal of sickness, so that food by the mouth could not be well borne. He was therefore fed by the rectum till his stomach could retain milk. The general temperature became normal on the second day, and remained normal throughout. The wound healed by granulation, and in every respect the progress of the case was eminently satisfactory. He was dismissed on 28th July, and has since returned to his work, but, I believe, meanwhile to a lighter and easier branch than that he was engaged in before his illness.

I have thought it right to record this case because of the infrequency of such accidents. I have only seen one other case, which was under the care of one of the surgeons of the Western Infirmary many years ago. In that case the external iliac artery alone was tied, and the sac left untouched. Gangrene supervened, and the man died. I believe in such cases the sac should always be opened, and thus pressure on the common femoral vein relieved, but my experience in this case would lead me in future, in any similar case, to ligature the vessels above and below before opening the sac, as both hæmorrhage and shock would thereby be lessened.

THE TRUE POSITION OF OXYGEN AS A RESTORATIVE IN CARBONIC ACID POISONING.*

By W. ERNEST THOMSON, M.A., M.D.

INTRODUCTORY.

SOME apology seems at first sight to be necessary in reopening for discussion a subject upon which physiologists are agreed—namely, that the percentage of oxygen present in the

* This research, which formed the subject of a thesis for the degree of M.D. at the University of Edinburgh in 1893, and was awarded a Gold Medal, was undertaken at the instigation of the Council of the Mining Institute of Scotland, which approached Professor M'Kendrick with the request that he would investigate the subject of choke-damp asphyxia, and the possibility of restoration by oxygen of the apparently asphyxiated. The British Association, at the Edinburgh Meeting in 1892, granted a sum of money to cover expenses, and I undertook the work at the request of Dr. M'Kendrick.—W. E. T.

atmosphere is sufficient, or nearly sufficient, to satisfy all the hæmoglobin present in the pulmonary capillaries.

According to Pflüger, arterial blood is saturated to nine-tenths with oxygen, and, according to Hüfner, to the extent of fourteen-fifteenths. *A priori*, therefore, it seems unreasonable to suppose that an increase in the percentage of oxygen at ordinary pressure and temperature will have any appreciable effect in further oxygenating the blood, and the more unreasonable still when one comes to consider that the researches of Paul Bert (*Pression barométrique*) with varying pressures of air only resulted in the taking up by the blood of a very little more oxygen when the pressure had reached six atmospheres; indeed, at ten atmospheres the increase was only 3·4 volumes per cent (chap. ii, sous-chap. iii, p. 665).

But, on the other hand, the literature of more than half a century affords ample proof that at various periods outbursts of enthusiasm have taken place in favour of oxygen as a therapeutic agent, more particularly in cyanotic conditions observed in various diseases, but also in other conditions not apparently connected with excessive venosity of the blood; and, to go no further back than two years, Lauder Brunton and other men of science have given it their vigorous support.

Setting out, therefore, fully armed with the knowledge that to prove oxygen beneficial would actually be to run counter to the teachings of physiology, and yet determined as far as possible to conduct an investigation in a scientific and unbiassed spirit, the author entered upon his task.

SCOPE.

Although it was originally intended to confine attention solely to the point of interest to the mining community, namely, whether or not oxygen is of any value in cases of choke-damp asphyxia, still as the work progressed it was seen that the scope of the investigation might perhaps be profitably widened to include some observations regarding its effect on persons in health, and also on those the subjects of cardiac or pulmonary disease with cyanotic symptoms. But, again, when the latter point came into the field of observation, and when the literature of the subject was looked into, it became apparent that this matter was one which could not be summarily dealt with; which, in fact, of itself demanded a painstaking and probably lengthy research.

Whatever importance, therefore, may attach to that portion of this work which has for its object the determination of

the value of oxygen in choke-damp asphyxia, very great importance cannot be attached to the few observations made upon patients in the Glasgow Western Infirmary. An unkind fate decreed that cyanotic cases should be scarce at the particular time when it was intended to pursue the investigation in this direction.

It is to be hoped, however, that this portion of it may be taken up at another time.

One point must be clearly understood. It is not considered necessary, in the light of extensive and classical researches such as those of Paul Bert (*Pression barométrique*, and *Physiologie de la Respiration*), to enter into a consideration of the physiological effects of breathing pure oxygen under more than atmospheric pressure.

HISTORICAL.

It may not be out of place, before commencing the actual account of the work, to briefly notice some of the various accounts which have appeared in periodical literature of the uses and value of this gas since it was discovered by Priestley in 1776.

Without, however, going further back than 1857, it is remarkable that in that year a discussion appears in the *Lancet* which shows that even then the subject of the therapeutic value of oxygen inhalation in cases of pulmonary disease was far from new.

In the *Lancet* (vol. ii, 1857, p. 114) a letter appears, written by William S. Savory, pointing out on physiological grounds the futility of expecting any good from the use of oxygen; and in the same volume (p. 112) is to be found a paper by S. B. Birch greatly in favour of its use; and, also in the same journal and volume (p. 553), a review of Dr. Birch's work condemns his views as unphysiological.

In the *Medical Times and Gazette* (vol. ii, 1863, p. 11) there is an account of the cure of epileptic fits of syphilitic origin by oxygen inhalations; and in the *Lancet* (vol. i, 1866, p. 270) a paper by R. H. Goolden, on its value in a case of double septic pneumonia. The same writer seems also to have been able to cure ulcers on the palate, probably of a tertiary syphilitic nature.

But the most remarkable account of all is that of M. Constantine Paul (*Half-yearly Abstract of the Medical Sciences*, vol. xlviii, 1868, p. 142), who seems positively to have looked upon it as a panacea. I venture to quote the summary of his

paper in full, in order to show what faith was placed in this remedy a quarter of a century ago:—

“I. Oxygen is not a poisonous gas, and thirty litres of this gas in the pure state can be inhaled for several days without any accident. It is only at the end of two or three weeks that fever is produced.

“II. Oxygen is a valuable resource in cases of asphyxia, especially when this is due to accidental suffocation. It may be useful in cases of strangulation, hanging, and drowning, as well as in poisoning by noxious gases and vapours.

“III. Oxygen is a valuable remedy in nervous asthma. In humid asthma—*i.e.*, the catarrh which accompanies emphysema, it will also be of good service provided its use be persisted in.

“IV. In phthisis, oxygen has not given such good results as were expected. It produces immediate relief, and this is very valuable; but fresh exacerbations follow, more intense, perhaps, than the first. It can then be regarded only as a palliative.

“V. In albuminuria, oxygen may become a valuable remedy if it be found on further observation to cause the albumen to disappear from the urine, as was observed in a case by Eckart, and in one under the author's care.

“VI. The same remark is applicable to diabetes.

“VII. In local gangrene, if there be not obliteration of the arteries, oxygen is a sovereign remedy.”

It must be admitted that this paper is not very conclusive. It contains many loopholes of escape for the author “by further observation;” but it serves to show with what an old story we are dealing, and how firm was the belief in the gas even at a time when physiologists had determined the relation which oxygen bears to hæmoglobin.

For a whole decade the subject seems to have passed out of interest, till in 1878 Dr. B. W. Richardson records in the *Lancet* (vol. ii, 1878) a series of laboratory experiments in which he found that oxygen had narcotic properties, and brought about a condition of coma, passing into death, when administered freely and continuously. He states, further, that animals subjected to it in a not too great percentage thrived fairly well for a long time; that in these cases the venous blood was as bright crimson as the arterial; and that the properties of oxygen for good or evil depended on the temperature and the degree of moisture present. A discussion of Dr. Richardson's experiments and views would be out of place here.

Then, in the *British Medical Journal* (vol. i, 1878, p. 562), Dr. C. B. Ball records a case of carbonic acid poisoning where the patient was moribund, and was restored by oxygen. An account is also given of an oxygen-inhaling apparatus for use in mines when there has been an explosion of fire-damp. And the *Practitioner* (vol. i, 1886) records that Professor Valerian Laschkewitch found it acted as a sedative in cases of hysteropilepsy and in cataleptic conditions, but that he candidly admits many failures.

In the *Lancet* (vol. ii, 1888, p. 278) occurs an interesting account of how General Sheridan had been kept alive for a long time by oxygen inhalations; and this account, it may be said, brings us up to the present period of enthusiasm on the subject.

"Over and over again, when the suffocative paroxysms which seized the General came on, and he all but expired, a bag of oxygen placed over his face kept life in him. . . . It is not often that oxygen proves itself so formidable an antagonist to death. . . . Oxygen has not really maintained a high position as a therapeutic agent. . . . It is . . . employed to carry patients through attacks of threatened suffocation, but rarely with any but transient success."

In the same volume of the *Lancet* (p. 437) there is an account of a case of capillary bronchitis in a child, in which impending death was staved off and the child recovered.

Up to this time oxygen had been used in the following conditions, apart altogether from those of a purely respiratory nature:—

Hydrophobia, pyrexia, constipation, liver disease, local gangrene, ulcers (especially syphilitic), boils, erythema nodosum, diphtheria, croup, epilepsy, diabetes, struma, uric acid calculus, phosphorus poisoning, carbonic acid poisoning, spasmodic affections, albuminuria, leukæmia, puerperal eclampsia, nerve disease (*vide* Neale's *Digest*, par. 224).

But it is only when we come to the year 1892 that the subject attains its greatest interest—a fact which is no doubt due to the simplicity with which oxygen can be made and stored by Brin's process.

The discussion was reopened in January, 1892, by Dr. Lauder Brunton and Dr. Marmaduke Prickett (*British Medical Journal*, vol. i, 1892, p. 172), who record a case of pneumonia in which they state that it was of great service. No good purpose would be served by entering into an account of all the papers which followed. It is necessary, however, to refer to Dr. Wm. Carter's paper (*British Medical Journal*,

vol. i, 1892, p. 251), in which he says that oxygen is excessively stimulating, and may cause tetanus.

I need only say that in the year 1892 twenty papers and letters, some of them by very eminent men, appeared in the *British Medical Journal* alone, but the date is so recent that the reader is requested to refer to the originals.

Although this essay primarily only deals with the particular case of asphyxia by carbonic acid, and the value of oxygen as a restorative, these historical notes may prove of interest.

It will, however, be my duty now to discuss facts as I have found them myself, irrespective of the experiences or theories of others, at least until my own results are set forth; but there is no blinking the fact that, even allowing for prejudiced observation, there is a large mass of clinical evidence in favour of oxygen as a drug for use in cases which are pathological, arrayed against the established views of competent observers of physiological phenomena. It remains to be proved whether or not the two sides of the question are reconcilable or wholly incompatible.

THE SUBDIVISIONS OF THE WORK.

The experiments fall into three groups:—

Part I. Experiments on animals in health.

Part II. Observations on healthy human beings.

Part III. Clinical observations.

PART I.

EXPERIMENTS ON ANIMALS.

Preliminary Remarks.—The animals employed were rabbits, and in a few experiments guinea-pigs. Practically, however, the results apply to rabbits only.

Considerable doubt prevailed at first as to the best method of setting about the work, and eventually it was determined that the experiments should take, as far as possible, a purely practical turn, untrammelled by a greater amount of physiological apparatus than was absolutely necessary. The question was raised whether or not the amount of carbonic acid used for bringing about a condition of asphyxia, and the amount of oxygen used as a restorative, should be measured; but for reasons adduced elsewhere (see section on "Conclusions from Experiments on Animals") the question was decided in the negative.

The main point at issue is simply this: Is it possible to narcotise a rabbit more or less deeply with carbonic acid, and to bring about its recovery more rapidly by administering to it oxygen than by giving ordinary air?

The following is a general account of the apparatus devised to determine the question:—

General Account of the Apparatus.—A respiration chamber (hereafter called “the respiration chamber” or simply “the chamber,” see Fig. 1, R) was made (21 in. × 12 in. × 12 in.) with tinned iron bottom and ends, and glass sides. On the top of it was fixed a zinc plate (z, Fig. 1) surrounding an opening large enough to admit a full-sized rabbit. The surface of this plate was carefully levelled and ground, and, when greased, fitted practically air-tight with the under surface of the plate-glass cover (g), which could thus be slipped off and on with the greatest ease. At the bottom

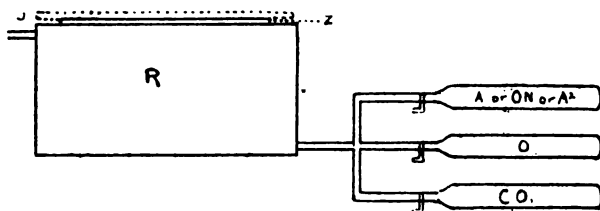


FIG. 1.

right-hand corner was fixed a brass inlet tube (i), and at the top left corner a similar outlet tube (o). Although it was never considered a necessary point that the chamber should be absolutely air-tight, it nevertheless could be made so by careful adjustment of the glass and zinc plates.

The gases to be admitted to the chamber were allowed to pass in by the inlet tube (i), and since they were derived from cylinders in which the gas was stored under pressure, no aspirating arrangement was necessary, the outlet tube (o) allowing gas to pass out at the same rate as it passed in: and this leads me to speak of the arrangements made for the supply of the various gases. At the outset it was merely intended that the carbonic acid and oxygen should have access to the chamber from their respective cylinders O and CO₂, most kindly supplied at cost price by the Scotch and Irish Oxygen Company, Polmadie; but when it came to be a question of the supply of air to the chamber for

purposes of comparison with oxygen, a difficulty arose as to how it was to be done. It then occurred to me to ask the Oxygen Company to put up some ordinary air in a compressed state. This they agreed to do, and the three cylinders of oxygen, carbonic acid, and air were attached to the inlet (i), as shown in Fig. 1.

It may perhaps also be well to explain at this point the meaning of the symbols A? and ON which occur in the "Record of Experiments,"* and elsewhere.

Shortly after obtaining the first cylinder of air, and after some experiments had been performed with it, a portion of the valve of the cylinder broke, and necessitated the obtaining of another supply. The second cylinder arrived, and was used for some time, when, by a mere accident, it was discovered not to be air, but a mixture which proved on analysis to be composed of equal parts of oxygen and nitrogen—a mistake which occurred at the works through carelessness on the part of the workman attending to the compressor, which had been recently used for oxygen. The results, of course, of this gas had to be discounted as far as their reference to air administration was concerned. Another cylinder was obtained which, *on analysis*, proved to be true air; but, of course, the first cylinder (the one which broke) was now open to suspicion, and its probable contents could not be ascertained. The first gas, then, is called Air? or A?; and the second, which proved to be equal parts of oxygen and nitrogen, is called oxy-nitrogen or ON; while the third is true air or A. It thus comes about that, instead of merely experimenting with oxygen and comparing it with air, there are four gases to be compared—namely, oxygen and oxy-nitrogen with air and air?. Oxy-nitrogen is, of course, simply to be regarded as 50 per cent oxygen. Air?, whatever it really was, cannot well have been pure oxygen, and the experiments with it are therefore not without value.

Methods of Using the Apparatus.—Experimenting, then, with the apparatus arranged as described above, the animal is placed in the respiration chamber and treated with carbonic acid up to a certain point, which varies in different groups of experiments. A careful note is taken of the time of commencement, and an estimate (in most cases) made of the relative quantity of carbonic acid which is being given. Then a careful record is kept of the animal's "progressive condition" as evidenced by its general appearance, state of the breathing, size of the pupils, occurrence of convulsions, and so on. A

* The actual record, which is somewhat bulky, is not published here. The comprehensive tables appended form a digest of it.

note is made of the condition of the animal just before the stoppage of the carbonic acid and commencement of the restoring gas (O, ON, A?, or A). This is called the "final condition." The restoring gas is now admitted, and the time accurately noted. The "progressive condition" is watched and noted, also the time at which the animal recovers—different phenomena in different groups of experiments denoting this event. This method of experimenting allows the animal to be resuscitated while still remaining in an atmosphere containing a certain extra amount (sometimes a large amount) of carbonic acid. But it was not followed throughout. A set of experiments was performed in which the administration of

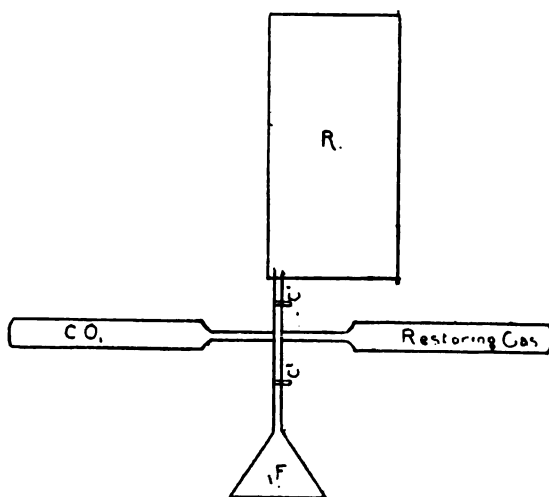


FIG. 2.

carbonic acid was commenced in the respiration chamber (Fig. 2, R), and after the convulsions had ceased the animal was removed and the funnel F placed over the head. The clip C¹ was now made to close the tube to the chamber R, and the clip C² was removed, allowing the carbonic acid to pass to the funnel, and thus the animal was subjected to a very pure atmosphere of carbonic acid; and further, when the CO₂ was shut off it could be treated with the restoring gas in a pure state, and free of carbonic acid. This, then, is what is meant by the expression "administration by the funnel."

Most of the experiments were performed by one or other of the above methods. Those which were done in another way will be referred to in the proper place.

TABLE I.—GENERAL STATEMENT OF THE EXPERIMENTS ON ANIMALS.

Experiment.	Animal.	Amount of CO ₂ .	Time in CO ₂ .	Final Condition.	Restoring Gas.	Time of Recovery of normal Respiration.	Time of Winking of own accord.	Time of Raising Head of own accord.	Remarks.
V	R.A.		1' 5"	Violent convulsions.	O rapid stream	approx. 1' 0"	...	...	R = rabbit.
VI	R.A.		1' 15"	Tetanic spasm. "	O do.	...	...	...	G = guinea-pig.
VII	R.B.		3' 1"	"Failing point."	A? do.	...	...	2' 7"	See explanation in text of "failing point," and of A?.
VIII	R.B.		3' 18"	Do.	A? do.	...	...	2' 34"	
IX	R.C.		3' 5"	Do.	A? do.	...	...	1' 41"	
X	R.A.		2' 0"	Do.	O do.	...	...	2' 15"	
XI	R.B.		1' 0"	Do.	O do.	...	...	1' 45"	
XII	R.C.		1' 10"	Do.	O do.	...	...	1' 50"	
7A	R.X.		3' 36"	Beyond failing point.	A do.	...	...	2' 12"	In 7A, 8A, and 9A the animals were unintentionally further asphyxiated than in VII, VIII, and IX.
8A	R.V.		4' 25"	Do.	A do.	...	...	3' 40"	
9A	R.V.		3' 50"	Do.	A do.	...	...	2' 55"	Died from overdoes.
XIII	R.A.		...	.....	...	...	...	...
XIV	R.B.		3' 5"	Respiration almost ceased.	O rapid stream	2' 50"	...	...
XV	R.C.		2' 15"	Do.	A? do.	1' 10"	...	...
XVI	G.A.		1' 47"	Failing point.	A? do.	1' 6"	...	...
XVII	G.B.		2' 2"	Do.	A? do.	1' 41"	...	...
XVIII	R.B.		2' 47"	Respiration almost ceased.	A? do.	1' 51"	...	...
XIX	R.C.		2' 6"	Do.	O do.	1' 20"	...	...
XX	R.B.		?	Complete cessation of resp.	ON by funnel.	0' 50"	...	...	For explanation of "funnel" method, see text. Complete cessation of respiration = cessation for several secs.
XXI	R.C.		?	Do.	ON do.	0' 49"	...	...	Died from overdoes.
XXII	R.O.		?	Do.	ON do.	0' 31"	...	...	Cf. XX-XII, where recovery = normal respiration.
20A	R.Z.		12' 22"	(Almost complete cessation of respiration.	A by funnel.	...	...	0' 58"	Test experiment of no value.
21A	R.X.		2' 37"	.....	A do.	...	...	0' 42"	Died from overdoes.
22A	R.X.		?	.....	...	...	...	...
XXIII	R.C.		?	Resp. ceased for some secs.	ON + art. resp.	...	...	...
XXIV	R.C.		?	Do.	ON + art. resp.	0' 40"	...	...
XXV	R.E.		?	Do.	ON + art. resp.	...	...	...
XXVI	R.E.		?	Do.	ON + art. resp.	...	...	...
XXVII	R.F.		?	Do.	ON + art. resp.	...	...	...

Continuous stream—amount uncertain.

[illegible]

TABLE II.—EXPERIMENTS IN GROUPS FOR COMPARISON.

Experiment.	Animal	Amount of CO ₂ .	Time in CO ₂ .	Final Condition.	Restoring Gas.	Time of Recovery of normal Respiration.	Time of Winking of own accord.	Time of Raising Head of own accord.	Remarks.
x 7A VII	R.A. R.X. R.A.	? ? ?	2' 0" 3' 36" 3' 1"	Failing point. Beyond failing point. Failing point.	O rapid stream A do. A? do.	... ... ...	... ... ...	2' 15" 2' 12" 2' 7"	
xii 9A IX	R.C. R.V. R.C.	? ? ?	1' 10" 3' 50" 3' 5"	Failing point. Beyond failing point. Failing point.	O do. A do. A? do.	... ... ...	... ... ...	1' 50" 2' 55" 1' 41'	These do not group well. See text.
xi 8A VIII	R.B. R.W. R.B.	? ? ?	1' 0" 4' 25" 3' 18"	Failing point. Beyond failing point. Failing point.	O do. A do. A? do.	... ... ...	... ... ...	1' 45" 3' 40" 2' 34"	
xix xv	R.C. R.C.	? ?	2' 6" 2' 15"	Respiration almost ceased. Do.	O do. A? do.	1' 20" 1' 10"	... ...	... ...
xiv xviii	R.B. R.B.	? ?	3' 5" 2' 47"	Do. Do.	O do. A? do.	2' 50" 1' 51"	... ...	... ...	In Exp. xviii the animal was assisted in its recovery, but xv compares well with xix, showing no advantage for O over A?
xx 21A	R.B. R.X.	? ?	? 12' 22"	Complete cessation of resp. Almost do.	ON by funnel. A do.	0' 50" ...	... ...	... 0' 58"	
xxi 22A	R.C. R.X.	? ?	? 2' 37"	Complete cessation of resp. Almost do.	ON do. A do.	0' 40" ...	... ...	... 0' 42"	

son.

No. 5.	2	Vol. XL.
xxv	R. D.	?
xxviii	R. Gi	?
xxvi	R. E.	?
xxvii	R. F.	?
xxix	R. B.	?
xxx	R. D.	?
xxxiv	R. F.	50' 2"
33A	R. F.	50' 10"
xxxiii	R. Fii	41' 40"
xxxi	R. Eii	33' 40"
32A	R. Z.	38' 45"
xxxii	R. Fii	36' 32"
xxi	R. J.	5' 30"
45A	R. X.	6' 12"
xlili	R. Gii	5' 26"
xxxviii	R. H.	3' 40"
44A	R. W.	5' 10"
xlvi	R. J.	4' 12"
xxxix	R. I.	2' 30"
35A	R. Y.	4' 35"
xliv	R. H.	3' 12"
xlxi	R. O.	11' 0"
L	R. P.	11' 5"
xxv	R. D.	?
xxviii	R. Gi	?
xxvi	R. E.	?
xxvii	R. F.	?
xxix	R. B.	?
xxx	R. D.	?
xxxiv	R. F.	50' 2"
33A	R. F.	50' 10"
xxxiii	R. Fii	41' 40"
xxxi	R. Eii	33' 40"
32A	R. Z.	38' 45"
xxxii	R. Fii	36' 32"
xxi	R. J.	5' 30"
45A	R. X.	6' 12"
xlili	R. Gii	5' 26"
xxxviii	R. H.	3' 40"
44A	R. W.	5' 10"
xlvi	R. J.	4' 12"
xxxix	R. I.	2' 30"
35A	R. Y.	4' 35"
xliv	R. H.	3' 12"
xlxi	R. O.	11' 0"
L	R. P.	11' 5"
xxv	R. D.	?
xxviii	R. Gi	?
xxvi	R. E.	?
xxvii	R. F.	?
xxix	R. B.	?
xxx	R. D.	?
xxxiv	R. F.	50' 2"
33A	R. F.	50' 10"
xxxiii	R. Fii	41' 40"
xxxi	R. Eii	33' 40"
32A	R. Z.	38' 45"
xxxii	R. Fii	36' 32"
xxi	R. J.	5' 30"
45A	R. X.	6' 12"
xlili	R. Gii	5' 26"
xxxviii	R. H.	3' 40"
44A	R. W.	5' 10"
xlvi	R. J.	4' 12"
xxxix	R. I.	2' 30"
35A	R. Y.	4' 35"
xliv	R. H.	3' 12"
xlxi	R. O.	11' 0"
L	R. P.	11' 5"

TABLE III.—RESULTS SHOWN IN AVERAGES, COMPARISON OF AVERAGE TIME OF IMMERSION IN CARBONIC ACID (CO_2), WITH AVERAGE TIME OF RECOVERY IN RESTORING GAS (x) EXPRESSED AS $\frac{x}{\text{CO}_2}$.

Experi- ment.	Time in CO_2 .	Final Condition.	Restoring Gas.	Recovery Time (<i>v. Tables</i> I and II).	Average Recovery Time in CO_2 .	Average Recovery Time in O.	Average Recovery Time in A?	Average Recovery Time in ON.	Average Recovery Time in A.	Value of Fraction, $\frac{x}{\text{CO}_2}$.
X	2' 0"	Failing point.	O rapid stream	2' 15"	1' 23"	1' 56"	...	...	...	O CO_2 = 1.387
XI	1' 0"	Do.	O do.	1' 45"						
XII	1' 10"	Do.	O do.	1' 50"						
VII	3' 1"	Do.	A? do.	2' 7"	3' 48"	...	2' 7"	...	...	A? CO_2 = 0.557
VIII	3' 18"	Do.	A? do.	2' 34"						
IX	3' 5"	Do.	A? do.	1' 41"						
7A	3' 36"	Somewhat over failing point.	A do.	2' 12"	3' 51"	...	...	...	2' 55"	A CO_2 = 0.738
8A	4' 25"	Do.	A do.	3' 40"						
9A	3' 50"	Do.	A do.	2' 55"						
XXXI	33' 40"	Feeble gasping respiration.	O slow + rapid.	6' 20"	41' 51"	7' 6"	...	...	...	O CO_2 = 0.169
XXXIV	50' 2"	Do.	O do.	7' 53"						

xxxii	38' 32"	Do.	do.	ON do.	6' 10"	38' 6"	...	...	7' 15"	...	$\frac{ON}{CO_2} = 0.185$
xxxiii	41' 40"	Do.	do.	ON do.	8' 20"	44' 27"	...	...	...	9' 36"	$\frac{A}{CO_2} = 0.212$
32A	38' 45"	Do.	do.	A do.	10' 2"						
33A	50' 10"	Do.	do.	A do.	9' 10"	8' 56"	...	...	...	...	$\frac{O}{CO_2} = 1.410$
xxxvii	9' 0"	Gasping shallow, infrequent.		O slow stream.	11' 20"						
xxxviii	3' 40"	Do.	do.	O do.	9' 5"	6' 20"	8' 56"	...	...	...	$\frac{O}{CO_2} = 1.410$
xxxix	2' 30"	Do.	do.	O do.	?						
xli	5' 30"	Gasping reduced to a spasm.		O do.	10' 50"	2' 51"	...	...	9' 16"	...	$\frac{ON^*}{CO_2} = 3.245$
xlx	11' 0"	Feeble spasmodic gasping.		O do.	4' 30"						
xxxv	0' 55"	Gasping. Condition critical.		ON do.	9' 20"	6' 44"	...	...	...	6' 8"	$\frac{A}{CO_2} = 0.910$
xxxvi	0' 30"	Gasping at long intervals.		ON do.	10' 30"						
xlili	5' 26"	Gasping very shallow.		ON do.	6' 15"	6' 44"	...	...	...	...	$\frac{A}{CO_2} = 0.910$
xliv	3' 12"	Gasping reduced to a spasm.		ON do.	10' 45"						
xlvi	4' 12"	Do.	do.	ON do.	9' 33"	6' 44"	...	...	...	...	$\frac{A}{CO_2} = 0.910$
35A	4' 35"	Do.	do.	A do.	7' 0"						
36A	7' 12"	Condition critical.		A do.	7' 40"	6' 44"	...	...	...	...	$\frac{A}{CO_2} = 0.910$
43A	6' 32"	Gasping reduced to spasm.		A do.	6' 38"						
44A	5' 10"	Feeble spasmodic gasping.		A do.	5' 52"	6' 44"	...	...	...	...	$\frac{A}{CO_2} = 0.910$
45A	6' 12"	Do.	do.	A do.	6' 53"						
L	11' 5"	Do.	do.	A do.	2' 50"						

* Omitting xxxv and xxxvi as being too quickly asphyxiated to compare with xliii, xlv, and xlv, the result is $\frac{ON}{CO_2} = 2.062$.

Explanation of the Tables.—This will be the most convenient point at which to explain the methods of arranging the tables, which were compiled from the "Record of the Experiments."

Table I.—In Table I the results of the experiments are set down in the order of performance, except that those with pure air, which were really performed last, are interpolated at the points at which they should have been performed: these are numbered in ordinary figures followed by the letter A (e.g., 7A), whereas all the others are numbered in Roman numerals (e.g., VII).

The first column gives the number of the experiment; the second, the name and distinguishing letter of the animal (R.A. means rabbit A); the third column, an estimate (often omitted) of the amount of carbonic acid; the fourth, the length of time in minutes and seconds during which the carbonic acid was administered; the fifth gives the "final condition"; the sixth, the name of the restoring gas, and the other columns give the time in minutes and seconds which the animal took to recover up to a certain point (which varies in different experiments, but is shown in the headings of the columns) after the first administration of the restoring gas and closure of the valve of the carbonic acid cylinder. When bold type is used for the figures in any particular column, that column contains the figures which are used for comparison of results.

Table II.—In this table the headings are similar to those in Table I, but the experiments are here grouped so as to compare the times of recovery in different gases. For instance, the first nine experiments in the table fall into three groups, all having the same, or nearly the same, "final condition." Each group contains an experiment with oxygen, with air, and with air?. Those experiments are grouped together which have the most nearly corresponding times of carbonic acid administration, although a satisfactory grouping was impossible in one or two instances.

Since not all the experiments were capable of being grouped, this table does not contain quite all the experiments performed. Those which remain must be sought for in Table I.

Table III is a most interesting one. In it all the experiments with oxygen *which have the same "final condition"* (e.g., "failing point," which will be explained hereafter) are taken, and the *average time* of carbonic acid administration is calculated. Then the *average time* required for recovery is also calculated. The latter is then divided by the former, and the result is a number expressed in decimals. The same is done with the experiments in which the restoring gas is A,

A?, or ON. We may thus express the average time of administration of the restoring gas as x (equivalent to A, A?, O, ON, according to which of these gases is used), the average time of administration of the carbonic acid as CO_2 , and the relation of the one to the other as a fraction $\frac{x}{\text{CO}_2}$, the value of which fraction will be discussed later on. A reference to the table itself will make these points clear.

A certain number of the experiments, in which, unfortunately, the time of carbonic acid administration was not noted, are shut out of this table.

(*To be continued.*)

CASE OF DIPHTHERITIC PARALYSIS WITHOUT ANY PRECEDING HISTORY OF THROAT AFFECTION.*

By C. O. HAWTHORNE, M.B., C.M.

THE patient who is the subject of this communication is a boy of eight years. He was admitted to Ward I of the Western Infirmary on 26th August, 1893, complaining of weakness of his legs. At that date he presented symptoms which, I think, will be generally allowed to afford an ample justification of the diagnosis of diphtheritic paralysis. The muscular substance of the limbs generally was wanting in firmness, and though there was nowhere absolute paralysis, the voluntary movements of the limbs were decidedly deficient in power. When walking he was rather unsteady: the feet were kept wide apart, and only slightly lifted from the ground, and he was quite unable to maintain his balance when endeavouring to walk along a single plank. The knee-jerks were entirely absent. All the superficial reflexes were easily obtained, with the exception of the plantar, which were not very marked. Albumen was present in the urine. The boy was quite obviously anæmic, and the blood tested by Gowers' hæmoglobinometer showed only 55 per cent of hæmoglobin. The pulse, on admission, numbered 64, and the first twenty-two observations gave an average of only 71.8. If to these clinical facts there be added the statement of the boy's mother, that about three weeks before the date

* This paper was read to the Glasgow Medico-Chirurgical Society on 6th October, 1893, the patient being shown to the meeting.

of admission she had noticed that the lad began to "speak through his nose," to have difficulty in swallowing, and that, when drinking, the fluid came back through his nostrils, there seemed to be no room for doubt that the case was one of diphtheritic paralysis. There are, however, certain negative facts which must be put on record, though, in face of the positive aspects of the case, they do not, I think, invalidate the diagnosis. Thus, there was no anæsthesia or paralysis of the soft palate; no defect in the power of accommodation for near objects; no strabismus or paresis of the extra-ocular muscles; and no cutaneous anæsthesia or abnormal state of the muscular sensibility.

The special interest of the case arises when the history of the patient's illness is considered. This was obtained from the mother, and is as follows:—The boy was in his usual health, when, in the early part of June of the present year, he ran a piece of tin into his left heel, producing a sore which gave some little trouble. In the middle of June the mother, with the patient and three other children, went from home to a country district in Ross-shire, and whilst there the boy's foot for a time became much worse. He was, however, never confined to the house, and after some weeks the sore on his foot healed. It was not until the early part of August that his present illness commenced. At that time his mother observed that he began to betray some difficulty in walking, and at the same time his voice acquired a nasal quality, he "gulped" when swallowing food, and fluids returned through his nostrils. The latter symptoms disappeared in the course of a fortnight. Neither the patient, nor any of the other children, at any time, suffered from sore-throat, and the mother considers that they were all in very good health during their stay in Ross-shire.

In the light of this history, the question may perhaps be raised whether, in spite of the symptoms, this case is really one of diphtheritic paralysis. I think that question must still be answered in the affirmative. Its close approximation as regards its positive aspects to the diphtheritic type, and more especially the paralysis of the soft palate, the absence of the knee-jerks, and with these features the existence of albuminuria, leaves no other interpretation open.

If, however, this conclusion involves the admission that the boy has had diphtheria of the fauces or neighbouring parts, obvious difficulties arise. No doubt paresis, extensive and severe, may follow very mild attacks of diphtheria, and indeed there seems a general tendency to believe that the

severity of the ensuing paralysis is rather in inverse than in direct ratio to the original inflammation. But it is certainly exceptional to find that there has been no complaint whatever of the throat before the onset of the paralysis; and especially to learn that the other children in the family, with whom the patient was living and sleeping, entirely escaped.*

On the other hand, it may be suggested that the original diphtheritic inflammation was manifested, not on the mucous membrane of the fauces, but on the surface of the wound in the boy's foot. Such a view is at least possible, for there are several cases of similar character on record.†

In this particular instance it is, of course, impossible now to determine where the original specific inflammation occurred, or even indeed if any such event preceded the paralysis. But there are certain features of the case which lend some support to the suggestion that the patient had a diphtheria of the wound in his foot, rather than of his fauces. First, there is the absolute and complete absence of all history of sore-throat, and the further fact in the history, that the weakness in the lower limbs was observed not after, but at the same time as, the paresis of the soft palate.‡

Then, in so far as deficiency in the superficial reflex irritability existed, this was confined to the plantar reflexes. Again, anæsthesia of the fauces and neighbouring parts was not present, though it must be remembered that there was no opportunity of examining the patient until all evidences of paresis of the soft palate had disappeared. On the whole, too, it is, I think, easier in the light of such a suggestion to understand the complete escape of the other children. But in any view the case seems noteworthy, as showing it to be possible to have a paralysis of the diphtheritic type without preceding symptoms, not only not recognised as diphtheria, but not even giving the patient any ground for complaint, nor attracting the attention of his friends.

* I have seen and examined the other children. All are free from any evidence of throat affection and paralysis, and in each child the knee-jerks are quite readily obtained.

† See *Med. Times and Gazette*, 8th December, 1866, p. 609; *British Med. Journ.*, vol. i, 1889, p. 1,291.

‡ In the cases of paralysis following diphtheria of the skin, reported by Trousseau, the limbs seem to have been affected as early as the fauces (*Fagge's Medicine*, second edition, vol. i, p. 275).

CURRENT TOPICS.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—The second ordinary meeting of the Society will be held in the Faculty Hall, 242 St. Vincent Street, on Monday, the 13th inst., at 8 o'clock. The following cases and specimens will be exhibited:—By *Dr. J. C. Renton*—a tumour of the ovary. By *Dr. M'Gregor Robertson*—a case of acromegaly. By *Dr. R. M. Buchanan*—a specimen of the "plasmodium" of malaria, &c.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—The following gentlemen have been appointed office-bearers for the ensuing session:—

<i>Hon. President,</i>	ROBERT BARNES, M.D., F.R.C.P., &c.
<i>President,</i>	ROBERT POLLOK, M.B.
<i>Senior Vice-President,</i>	THOS. RICHMOND, L.R.C.P.
<i>Junior Vice-President,</i>	ROBERT KIRK, M.D.
<i>Secretary,</i>	J. NIGEL STARK, M.B.
<i>Treasurer,</i>	ALEX. MILLER, L.R.C.P.E.
<i>Reporting Secretary,</i>	ROBERT JARDINE, M.D.
<i>Pathologist,</i>	A. MILROY, M.D.

Members of Council.

WM. CULLEN, M.B.	E. H. L. OLIPHANT, M.D.
J. K. KELLY, M.D.	A. RICHMOND, M.B.
MALCOLM BLACK, M.D.	D. N. KNOX, M.B.

UNIVERSITY OF GLASGOW.—The following have passed the first professional examination for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

OLD REGULATIONS.—William Buchan Armstrong, Thomas Baxter, Hugh Borland, Thomas Alphonsus Brennan, William Brown, Charles Cairnie, M.A.; Thomas Cochrane, James Banks Cumming, Thomas M'Gibbin Fletcher, James Graham, James Donald Holmes, James Kirkland, George Louis Le Fevre, David George Lindsay, Robert Adair Lockhart, John Marshall, Robert Hugh Meikle, Wm. M'Gilchrist Montgomery, John Walker Munro, Andrew Brown Murray, George Murray, Archibald M'Glashan, Joseph M'Gowan, Archibald M'Intyre, Hugh M'Intyre, Robert Rillie, Alexander Page Robertson, Robert Shanks, Joseph Sillars, David Wallace Smith, David Lyon Stevenson, M.A.; James Stirling, Andrew Taylor, Andrew Colville Wilson.

Women Candidates.—Annie Kirby Anderson, Christina Fraser, Mildred Ransom, Merbai Ardesir Vakil.

The following have passed the first professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subject or subjects indicated after their respective names (B., Botany; Z., Zoology; P., Physics; C., Chemistry):—

NEW REGULATIONS.—John Aitken (B., P.), George Alexander (Z., P.), Alexander Smith Allan (Z., C.), James Alston (B., Z., P., C.), Arthur James Ballantyne (B., P.), James Symond Beveridge (B., Z.), John George Wilson Boleyn (B., Z., P.), Theodore Belchambers Broadway (B., Z., P., C.), John James Buchan (B., Z.), William Cochran Burns (B., Z., P., C.), David Louis Cairns (B., P.), Ranald Douglas Campbell (B., Z.), Robert Carswell, M.A. (B., C.), Alex. Henderson Cassells (B., P.), Francis James Charteris (B., P.), George Clark (B., C.), Joseph Adam Clarke (B., Z., P., C.), George Coats (B., Z., P., C.), George William Coats (P., C.), James Duncan Cochran (B., P.), George Jones Cole (Z., C.), Joseph Muir Corbett (B., Z., P., C.), William Crerar (B., P.), John Crow (Z., P.), Robert Douglas, M.A. (B., P.), Binnie Dunlop (B., Z.), Walter Scobie Findlay, M.A., (B., C.), James Finlayson Fleming (P., C.), Adrian Andrew Forrester (B., Z., P., C.), Thomas Bonnar Garvie (B., Z., P., C.), Lawrence Whitaker Harrison (B., Z., P., C.), Harold Smith Heap (B., P.), Thomas Hunter, M.A. (B., Z., P., C.), George Irving, M.A. (P.), Ernest Frederick Lionel de Jersey (Z., C.), Archibald Jubbs (B., P.), Alexander Lawrie (P., C.), Alexander Millar Lindsay (B., P.), William Mitchell Lindsay (B., Z., P., C.), John Watson Little (B., Z.), Andrew Love (B., P.), Robert Lunan (Z.), James Alexander Mitchell (B., P.), John Macdonald (B., Z., P., C.), James M'Haffie (B., Z., P., C.), William Findlay M'Indoe (Z., C.), David M'Kail (B., Z., P., C.), Anderson Gray M'Kendrick (B., Z.), Laurence Abel M'Kenzie (B., C.), Alfred Duncan M'Nair (B., P.), Roderick Reid Macnicol (B., Z.), James M'Queen, M.A. (B., C.), James M'Whir (B., C.), William Gardner Neil (B., P.), Alexander Duncan Nicolson (B., Z., P., C.), Robert Niven (P.), James Service Ormond (B., Z., P., C.), John Reid (B., C.), Daniel Scanlin (Z., P.), James Scott (B., P.), Joseph Wilkie Scott (B., P.), Norman Emil Henry Scott (B., Z., P., C.), Robert Scott (B., Z., P., C.), David Ap Simon (B., Z.), John Laird Simpson (Z., C.), Alexander Bankier Sloan (B., Z., P., C.), John Macfarlane Sloan (B., P.), David Steele Smith (Z., C.), John M'Callum Stewart (B., Z., P.), James Strang (B., P., C.), Donald Sage Sutherland (B., Z., P., C.), Walter Lewis Thomson (B., Z., P., C.), Henry Nisbet Turner (B., Z., P., C.), William James Alexander Walker (Z., C.), William Watson (Z., C.), Ernest Watt (Z., C.), James Paterson Wilson (B., P.), John Wotherspoon (B., Z., P., C.), William Wyper (P., C.), and David John Young (Z., C.)

Women Candidates.—Daisy Annabelle Bennett (Z., P.), Daisy Annabella Murdoch Clark (B., Z., P.), Mary Gardner (B., Z.), Jane Lorimer (B., Z.), Minna Amelia Macfarlane (B., Z.), Margaret Eliza-

beth McNeill (B., Z.), Jean Effie Prowse (B., Z.), Agnes Renton Robson (B., Z., P.), Catherine Love Smith (Z. C.), Jessie Hawkesworth Smith (B. Z.)

The following have passed the second professional examination for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

William Alexander, William Allan, William Allen, John Anderson, M.A. ; John Anderson, John Lindsay Anderson, Samuel Anderson, William Stephen Baird, Robert Brownlee Barr, Thomas Bell, Henry Broom, Robert Buchanan, M.A., B.Sc. ; Ernest Alexander Campbell, Malcolm Campbell, Samuel Capie, Peter Skinner Clark, William Clow, M.A., B.Sc. ; Frederick Burdett Cormick, Samuel Donaldson Cowan, M.A. ; Peter Latimer Leitch Craig, M.A. ; John Divine, John Hannay Douglas, Joshua Ferguson, M.A. ; James Forster, James Foulds, Thomas Oleator Garrett, John Gillan, M.A. ; James Drummond Graham, John Alexander Graham, Joseph Green, William Martin Griffith, George Henry Beck Harvey, Robert Hastie, William Hay, B.D. ; Arthur Holt, Gavin Dalziel Hunter, Allen Iredale, Frederick James Jayne, David Connor Kirkhope, John Knight, William Lawson, Robert King Miller, John Miller Woodburn Morison, Adam Cubie Muir, James Andrew Dixon Mulholland, Donald Munro, James McClure, James Campbell McClure, William Milroy McFarlane, Edward Mackay, John Soutar McKendrick, Lewis MacLachlan, Murdo Norman Macleod, William Macleod, Alexander Anderson McNab, Robert McNaught, George McPherson, Robert Nelson, Harry Couper Patrick, John Robert Gordon Phillips, Edward James Primrose, M.A. ; Samuel Prior, John Broadfoot Rae, John Rankin, John Neil Robertson, Neil Robson, William Scobie, B.D. ; James Smith, Thomas Orr Spiers, James Sproul, Alexander Stevenson, Alexander Stewart, Alexander Hamilton Stewart, James Edmund Fergusson Stewart, Michael Wilson Symington, Joseph Milton Thornley, Charles Kirk Teland, Anthony Vost, Ernest Alexander Walker, M.A. ; Noel Charles Echlaz Ward, Henry Allan Watson, M.A. ; Henry Whitehouse, James Eric Wilson, Frederick Wolverson, Albert Samuel Worton, William Henry de Hyde Wytt, Archibald Young, John Young (Glasgow).

Women Candidates.—Agnes Jane Anderson, Kate Isabel Clutterbuck, Edith Ellen Goodrich, Mary Baird Hannay, Elizabeth Dorothea Lyness, Emmeline Marie Stuart.

The following have passed the third professional examination for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.):—

A.—INCLUDING PATHOLOGY.—Thomas Douglas Brown, John Brownlee, M.A. ; Henry Carmichael, Alexander Cochran, William Stewart Cook, B.Sc. ; John Cumming, Hugh Brown Currie, John Dunlop, David Erskine, Albert Alfred Finkelstein, Thomas John

Forbes, Robert Wardrop Forrest, James Fairlie Gemmill, M.A.; Alexander Girvan, David Glen, John Guy, Thomas Henry Hay, Robert Howie, William Henry Lang, David Ligat, Charles Hendry Lumsden, James Mair, John Howie Martin, M.A.; Robert Morton, George Mowat, John Murray, Fergus M'Kenna, Donald M'Lean, Alexander MacLennan, Cuthbert Nairn, Hugh Stirling Brown Nisbet, Henry Alexander Pattullo, Hugh Riddell, Hugh Wright Thomson.

Women candidates.—Margaret Cochran Dewar, Marion Gilchrist.

B.—NOT INCLUDING PATHOLOGY.—Robert Aitkenhead, Thomas Angus, Evan Bidie, Alexander Blair, Thompson Campbell, Allan Aiken Clark, John Andrew Cook, William James Coupar, Robert Kirkwood Currie, James Donaldson, William Donaldson, William Bickerton Edwards, Frank Elliott, Daniel Ferguson, James Findlay, James Forrester, Andrew Frank Wilson Gunn, Francis Robert Hill, John Affleck Hope, John Hunter, Arthur Lawton, James Duncan Love, William Duncan Miller, John Morrison, Moses Neil MacLay, Farquhar Macrae, Daniel Richmond, James Currie Robertson, M.A.

Obituary.

ROBERT CHARLES BRODIE, M.B., C.M.

THE intimation of the death of Dr. Brodie has caused a profound feeling of sorrow in such a wide circle as is rarely influenced by the death of so young a man.

Dr. Brodie left town early in October for a brief holiday prior to the opening of the winter session. While in Lincolnshire on a visit to some friends, he was, on the 12th ult., suddenly seized with symptoms of typhlitis, and, in spite of all treatment, he sank, and died on the 17th October, in the twenty-seventh year of his age. He was buried in the Necropolis on the 20th ult., when a very large number of friends paid a last tribute of respect to his memory.

Graduating in 1888 at the University of Glasgow, Dr. Brodie spent the following winter in study at Vienna. Returning home in the spring of 1889, he devoted the four succeeding years to hospital work, filling in succession the offices of Resident Assistant in the Royal Infirmary, at Gartnavel Royal Asylum, at the Royal Hospital for Sick Children, and at the Maternity Hospital. In all of these institutions he not only did good work, but did it so as to leave behind him the kindest recollections of his term of office.

Having thus laid a thorough foundation for a successful career, he commenced practice in Hillhead during the past summer, and looked forward with great pleasure to the fact that he was still to continue his hospital connection, as he had been appointed by Dr. Middleton his assistant in clinical teaching at the Royal Infirmary.

He had also commenced to contribute to the literature of the profession by publishing in our pages careful notes of some interesting cases he had observed in the Royal Hospital for Sick Children.*

Few men enter on the practice of their profession with brighter prospects than those of Charles Brodie. He seemed to be the very man who, in due course, would build up for himself a large practice, and who would come to occupy to many the position of the trusted physician and friend. Endowed by nature with so much good-heartedness and sympathy, as at once drew to him those with whom he came in contact, he was also possessed of an extremely well balanced judgment and great firmness of character. These qualities had endeared him to a large circle of friends, both lay and medical; but his name must now be added to the already long list of lives cut short just when promise seemed on the point of fulfilment.

REVIEWS.

The Diagnosis of Diseases of the Heart and Thoracic Aorta, and the Pathology which serves for the Recognition of Morbid States of the Organs of Circulation. By A. ERNEST SANSOM, M.D., F.R.C.P., Physician to the London Hospital, &c. With numerous Charts and Illustrations. London: Charles Griffin & Co. 1892.

DR. SANSOM'S book has now been in our hands for several months, and frequent reference to its pages has convinced us that it will take a high place among works dealing with diseases of the heart.

It is divided into three parts—the first dealing with rational diagnosis, the second with physical diagnosis, and the third with the sphygmograph and the cardiograph. Each is treated

* "Tuberculosis of the Peritoneum and Uterine Appendages in a Child," December, 1892, p. 420; and "Case of Spinal Tuberculosis associated with Abscess," March, 1893, p. 172.

in great detail, and the second and third are profusely illustrated with tracings.

It is impossible, within the limits of a review, to offer detailed criticism of a work of this kind. One or two points, however, may be noted.

The pages devoted to rational diagnosis contain an admirable description of the symptoms and etiology of heart disease, each individual symptom being discussed by itself. This subdivision of the subjects is perhaps the one general feature of the book which seems to us to be a fault: it leads to so many cross references being necessary when the volume is consulted on any particular case.

In the section on physical diagnosis we find Dr. Sansom most interesting, for the facts and opinions there recorded could only be the outcome of a large clinical experience and careful observation. Dr. Sansom has strong opinions on the subject of percussion. He advocates the use of a special pleximeter of his own, but he seems to us to claim for it too much. Experience has proved to us that his pleximeter is a good one; but we have experience also on our side when we say that percussion with the finger as pleximeter gives us equally good, if not better, results. To judge from the many tracings of cardiac dulness with which the book is supplied, we are inclined to think that in many cases we should probably make out dulness of larger size with the finger than Dr. Sansom does with the pleximeter. He insists too much on the impossibility of absolute accuracy without such a pleximeter, and he fails to note that the size of the percussion dulness is after all not of so much importance as the inference drawn from it. For instance, two observers may map out very different dulnesses, and yet both may infer that, *e. g.*, there is great cardiac hypertrophy.

Dr. Sansom's theory of percussion seems also to be wrong, for (p. 167) he says—"By slightly inclining the pleximeter so that the vibrations come from its left edge, this is practically a line. . . . This practically corresponds with the outline of the right border of the heart. This is probable theoretically, because the vibrations, being communicated in the direction of right lines, the position at which these waves are modified by the subjacent body, which diminishes the air-column and intercepts the vibrations, is also manifest in a right line—that is, the deeper surface where the modification takes place is exactly in the same line as the surface struck." Now, there can be no doubt, we believe, that however fine the edge of the pleximeter may be, when struck, vibrations are

set up in all directions, just as a stone thrown into water gives rise to a circular wave front.

It is so well known that Dr. Sansom has been a prominent advocate of graphic methods in clinical medicine, that it is not necessary to say that the section on the cardiograph and the sphygmograph is very complete. To us these instruments have always seemed more or less unreliable as ordinarily employed. Some years ago our attention was directed to a small collection of papers on cardiography and sphygmography by the late Dr. Alonzo T. Keyt of the United States, and his method of taking simultaneous cardiac, pulse, and time tracings seemed to us to give much more excellent results than the methods ordinarily pursued. Strange to say, no reference to his instrument and labours has met our eye in Dr. Sansom's volume.

Almost all the vexed questions in cardiac diagnosis and pathology are fully discussed by the author; but two subjects of interest seem to have escaped him, for we find no reference to congenital malformations of the heart or to fibroid degeneration of the organ. These will probably not be overlooked in a second edition.

Differing from other well known works on the heart in its mode of arrangement, this one takes a place of its own, and will add to the well earned reputation of its author as a worker in cardiac diagnosis and pathology.

A Medical Handbook: for the use of Practitioners and Students. By R. S. AITCHISON, M.B., C.M., F.R.C.P.E. With numerous Illustrations. London: Charles Griffin & Co., Ltd. 1893.

THIS is a companion volume to Caird and Cathcart's *Surgical Handbook*, and has been written with the object of supplying to students and busy practitioners a *résumé* of practical medicine. The essential features of the various diseases discussed are, accordingly, made as prominent as possible, and special care has been bestowed upon the paragraphs dealing with differential diagnosis. A chapter is devoted to "General Data Useful for Reference," and contains rules for the management of infants, incubative periods, treatment in poisoning cases, &c.

The work suffers, like others of the same nature, from the condensation considered necessary, and is, besides, in many particulars distinctly inaccurate. Any recommendation we

give it must therefore be a very qualified one. The following are not the only mistakes we have noticed :—

On page 20, in Fig. 4, a scheme of the circulation is given, in which the venous return from spleen and stomach is made to flow direct into the inferior vena cava, the portal vein being supplied wholly from the intestines.

On page 281, in the description of the rose-spots of enteric fever, it is stated that "they have been compared to flea-bites, and they are not raised above the level of the skin;" while, of the typhus spots we read (p. 286), "*crops* of them disappear and appear during the second week."

A Manual of the Practice of Medicine, prepared especially for Students. By A. A. STEVENS, A.M., M.D., Instructor of Physical Diagnosis in the University of Pennsylvania, and Demonstrator of Pathology in the Woman's Medical College, Philadelphia. Illustrated. Philadelphia: W. B. Saunders. 1893.

THIS is confessedly a student's manual, intended to give them in a concise form the main facts of the practice of medicine. It is one of the best books of its kind that we have seen, and it should prove of service to students if they follow the author's advice—viz., that it "shall be enlarged upon by diligent attendance upon lectures and critical observation at the bedside." To us it seems to be so condensed that it can most properly be used by a man who has had a good course of lectures, or who has read a larger and more thorough book.

Anæsthetics and their Administration. By FREDERICK W. HEWITT, M.A., M.D. Cantab., Anæsthetist and Instructor in Anæsthetics at the London Hospital, Charing Cross Hospital, London Dental Hospital, and the National Orthopædic Hospital. London: Charles Griffin & Co. 1893.

DR. HEWITT has produced one of the fullest and one of the best of the works on anæsthetics which we have.

If we disagree with certain of his conclusions in regard to the relative safety of the various anæsthetics treated of, and if we venture to think that he has to some extent needlessly overlaid the salient features of his subject in parts with too

great elaboration of detail, we have exhausted any adverse criticism we should be inclined to make.

Dr. Hewitt's experience in the administration of anæsthetics has been an exceptionally large one, and his reading in the literature of the subject evidently wide.

The book will repay careful attention. It is clearly written, and is replete with interesting facts and observations, while many of its passages are of highly suggestive scientific interest.

Syphilis and the Nervous System, being a Revised Reprint of the Lettsomian Lectures for 1890, delivered before the Medical Society of London. By W. R. GOWERS, M.D., F.R.C.P., F.R.S., Consulting Physician to University College Hospital, &c. London: J. & A. Churchill. 1892.

THESE lectures are, no doubt, familiar to many of our readers, having been originally published in the weekly medical journals. In their present form, however, they are much more readily accessible, and they will accordingly be welcomed by all who are interested in the diseases of the nervous system.

While Dr. Gowers admits the wide prevalence of syphilitic diseases of the nervous system, he is by no means one of those (whose number, by the way, is far too great) who regard every case of nervous disease occurring in a person who has had syphilis as being of syphilitic origin. In a most carefully reasoned discourse he shows how, in every case, it is necessary to make a minute diagnosis of the site and nature of the lesion before coming to a conclusion that it is of specific origin, even although there be a clear history of infection. His views on the pathological anatomy of syphilis are well worthy of perusal; they set forth in a clear and comprehensive manner the various morbid processes that are met with in the disease. It is essential to master these, as scientific prognosis and treatment depend entirely on a correct appreciation of the nature of the morbid process present.

His conclusion that "syphilis is an incurable disease" is rather startling, considering how well known is the fact that in a great majority of cases its manifestations may be made to disappear. In the sense, however, in which he means this—viz., that while its lesions may be removed, its original virus is beyond our reach, and hence is always liable to give rise to new phenomena—there can be little doubt that he is right.

Practical Observations on the Harrogate Mineral Waters, and Chronic Diseases, with Cases. By ANDREW SCOTT MYRTLE, M.D., L.R.C.S.E., J.P., late Hon. Consulting Physician, Harrogate Bath Hospital, &c.; and JAMES AITKEN MYRTLE, M.D., C.M., J.P., &c. Fourth edition, with additions. Harrogate: Robert Ackrill. 1893.

It is gratifying to find that a British watering place of the importance of Harrogate has, in Dr. Myrtle and his son, champions so willing and so able to make known its true worth. The invalid who

“ . . . bouses drumly German water,
To mak’ himsel’ look fair and fatter,”

has only to look through this book to be convinced of the absurdity of his conduct, while Harrogate, with its unsurpassed, perhaps unequalled, variety of curative waters, lies so close to his hand. It is this variety, probably, in the character of its springs, together with its admirable climatic conditions, which has enabled the Yorkshire Spa, not merely to hold its own, but to advance rapidly, while other British watering places have suffered in the competition with foreign health resorts.

The authors follow Hofmann’s classification of the Harrogate waters into four groups—viz., strong sulphurous, mild sulphurous, saline chalybeate, and pure chalybeate. They give a general account of the properties of each group, and deal more particularly with the peculiarities of several of the individual springs. One of the springs contains more iron than any other known, either in this country or elsewhere (16 grains ferrous chloride and 12 grains ferrous carbonate in the imperial gallon).

The second and larger part of the work deals with “chronic diseases at the Harrogate Spa.” In the course of his very extensive experience, Dr. Myrtle has formed strong opinions on the nature as well as the treatment of disease, and he does not hesitate to break a lance with such authorities as Roberts, Hutchinson, Crocker, and Yeo. The results obtained from treatment by the waters in many cases which have baffled the skill of medical men of high standing are very remarkable, and the records of these constitute one of the most interesting parts of the work.

We notice some awkward misprints—thus, “Aix-le-Bains” for “Aix-les-Bains” (pp. 40 and 231); “enervation” for

"innervation" (p. 74); "neuritus" for "neuritis" (p. 192); "insense," apparently for "impress." The frequently recurring name "Kissingen" is, throughout the whole work, spelt "Kissengen" (one of the Harrogate springs is called after the famous Bavarian watering place). In the advertisements at the end of the book, however, the usual spelling is employed. Surely the authors, if any, might have been expected to be familiar with the correct form.

The book will well repay perusal by any one who, either as physician or as patient, is interested in an ailment for the cure of which resort is sometimes had to medicinal waters.

Carlsbad: A Medico-Practical Guide. By EMIL KLEEN, M.D., Ph.D., Practising Physician at Carlsbad. New York and London: G. P. Putnam's Sons. 1893.

THIS is a very interesting account, written for the benefit of the English-speaking "layman-patient," of the famous Bohemian Spa. A list is given of eighteen morbid conditions which may be regarded as pre-eminently "Carlsbad diseases," these being various derangements of the digestive and urinary systems, together with obesity, gout, and diabetes. Besides these, there are, of course, ailments in which Carlsbad, in common with other watering-places, may be expected to prove beneficial. The water which contains the genuine Carlsbad salts is derived from nearly twenty springs, and may be briefly described as a warm solution of the sulphate, bicarbonate, and chloride of sodium. The same constituents, though in different proportions, are present in the waters of Marienbad and Tarasp. The temperature of the particular spring is practically the only reason why the physician should recommend it rather than another of the Carlsbad springs.

In former times, it was the custom to take the waters in enormous doses, and at the same time to observe a very rigid dietary. The consequence was that Carlsbad came to have the reputation of sending away every patient thinner than when he came; a corollary was that anæmic and thin persons ought to avoid this Spa. Nowadays the quantity taken varies from one to four glasses, each glass containing barely eight ounces, and many people now leave the place stouter than when they arrived.

Carlsbad possesses, in addition, one or two unimportant chalybeate springs, while the well-known Giesshübler and Krondorfer mineral waters are obtained in its neighbourhood.

As might be inferred from its name, Carlsbad had an early reputation for its baths, and indeed it was not until the sixteenth century that the virtues of its waters taken internally were discovered. The baths were thereupon forsaken altogether, but they have latterly regained some of their former repute.

The author does not deal simply with the therapeutic resources of Carlsbad; he gives us a very good guide to the place, and as there are 35,000 visitors annually, including 3,000 Americans and English, a work of this character ought to be very welcome.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1893-94.

MEETING I.—6TH OCTOBER, 1893.

MEDICAL SECTION.

The President, DR. HECTOR C. CAMERON, in the Chair.

I.—SPECIMEN OF RUPTURED UTERUS.

By DR. R. M. BUCHANAN.

Dr. R. M. Buchanan showed, as a fresh specimen, a uterus which had been ruptured during labour. Details as to the clinical history will be reported to a future meeting, but meantime it may be stated that the rupture was situated at the junction of the cervical portion with the body of the uterus. It ran transversely, involving the whole of the anterior wall. The rent was of such a size that the child and placenta had passed through it into the abdominal cavity. There was a large collection of blood in the right broad ligament and also in the abdominal cavity, in the form of clot on the right side, and of fluid blood on the left. There was also a good deal of peritonitis, there being deep injection of all the peritoneal surface, including the omentum.

Dr. Buchanan considered the situation of the rent to be of some interest. The authorities he had consulted stated that such rents most frequently occurred on the *posterior* or *lateral*

aspects of the cervical part, at about the same level as in the present case. He was not in a position, meantime, to give any definite opinion as to the causation of the rupture.

A black-and-white sketch of the parts was also shown to the meeting.

II.—CASE OF DIPHTHERITIC PARALYSIS WITHOUT HISTORY OF THROAT AFFECTION.

BY DR. C. O. HAWTHORNE.

Dr. Hawthorne showed this patient, and gave the account of the case which appears as an original article at p. 357.

Dr. Alex. Robertson asked if there had been any change in the electrical reactions.

Dr. Hawthorne regretted that they had not been tested.

Dr. J. Wallace Anderson related a somewhat similar case which he had seen a few years previously. The patient had been residing at the coast during summer, and while there, had had an attack which had been considered to be one merely of severe sore throat. She had been attended by a physician of long experience and recognised ability. On her return to Glasgow a few weeks afterwards, she had had some difficulty in speaking and in swallowing, and had felt her arms and legs easily tired. When seen by Dr. Anderson, she had marked affection of speech and some paresis of the limbs, but ultimately had made a good recovery. In that case the ultimate diagnosis of diphtheria was even clearer than in Dr. Hawthorne's case, but still the nature of the disease had not been recognised at the time of the sore throat. It would be interesting to know what statistics were available as bearing upon Jacobi's suggestion that cases of diphtheria with mild throat affection were the most likely to be followed by paralysis. Was it possible that, in mild throat cases, the imperfect development of the disease in its most natural locus led to an increased liability to subsequent paralysis?

Dr. Alex. Robertson had no doubt about the diagnosis in Dr. H.'s case. He had recently seen another in which he had suggested a similar diagnosis on even a more slender basis. The patient had been a child of the same age, suffering from paralysis of the lower extremities with absence of the deep reflexes; there had been no sore throat, but diphtheria had been prevalent in the district. The course of the paralytic symptoms had conformed to the diagnosis of diphtheria. Sometimes indications in the throat were recognised, but were very slight, and yet paralysis followed, as in the case quoted.

The paralytic attack, also, might be very slight, as in a patient, whom he had seen, complaining merely of weakness of the legs, but in whom there was absence of the deep reflexes, with a previous history of a severe attack of diphtheria.

Dr. Middleton suggested that some of the cases of peripheral paralysis ascribed to diphtheria might be caused by influenza. He had seen a patient who had had a recognised attack of influenza followed by paralysis of the limbs, and ultimately by paralysis of the heart. In another case in which there had been paralysis of both legs, both arms, and both sides of the face, influenza was the probable cause. As the symptoms of influenza were sometimes connected with the throat, the reference to diphtheria of cases of peripheral paralysis really following influenza was all the more likely.

Dr. Walker Downie had, two days previously, examined the throat in *Dr. Hawthorne's* case. He had found reflex and voluntary movement intact, and sensation over the laryngeal mucous membrane had appeared normal. There had been slight swelling of the submaxillary glands, but no local evidence of false membrane having been recently present. A short time before, he had seen another case of *Dr. Hawthorne's*, and on examination of the throat, had found one of the cords deeply injected and eroded from the recent presence of false membrane. It was well known that in epidemics of diphtheria cases were often overlooked at first, and attention drawn to them only by the subsequent paralysis. There was no disease in which notification was so defective as diphtheria; this had been well brought out in a letter by *Dr. Thursfield*, published in the *British Medical Journal* for 15th July of this year. Thus, though there was nothing now to be seen in the present patient's throat, that did not exclude the possibility of his having had diphtheria.

Dr. Hector C. Cameron thought that *Dr. Hawthorne's* suggestion that the wound had been the source of his patient's illness was a very fair one, and quoted a case in which he had seen diphtheritic membrane develop upon an abrasion on the hand of an adult. It was well known that surgeons sometimes acquired diphtheria from their patients. When *Sir Joseph Lister* was in Glasgow he had pricked his finger while operating on a diphtheritic patient; the finger had not troubled him much at the time, but paralysis had set in shortly afterwards, and the nature of the wound had thus been indicated.

Very frequently the first case of diphtheria in a family was not recognised as such until a second child became ill, or the

first was found to have albuminuria or paralysis. In this connection, Dr. Cameron referred to an interesting communication, which had been made to the Society some years ago by Dr. J. B. Russell, on the question as to whether all cases of "croup" in children were not diphtheria. He quoted also the case of an adult on whom he (Dr. Cameron) had operated, and whose death had subsequently been certified "laryngitis," while within a week after the death all the children in the house had taken ill with diphtheria.

Dr. Hawthorne said that it had been intended also to show the second case referred to by Dr. Walker Downie, but that had been found inadvisable. The patient had a history of a recent throat affection, regarded as "croup" or "laryngitis," and, although there was no definite paralysis, still, on examination, one knee-jerk had been ascertained to be absent, and the other been obtained only with difficulty.

III.—OBSERVATIONS ON THE ACTION OF THE BRAIN OF THE SHEEP IN DISEASES OF THE CENTRAL NERVOUS SYSTEM AND MIND.

BY DR. ALEX. ROBERTSON.

Dr. Robertson, at the outset of his paper, stated that the success of the different preparations and modes of administration of the thyroid gland in the treatment of myxœdema stimulated enquiry into the action of other organs and animal structures in various diseases. It had occurred to him to try the fresh uncooked brain of the sheep in certain diseases of the nervous system and mind. He had been induced to try it by the stomach as an aliment, owing to the retention of the active properties of the thyroid when so administered. It had been given in a number of cases of insanity, including mania, delusional insanity, and melancholia. In his opinion, it had been useful in the melancholic cases, details of which were submitted. It was also tried in bulbar paralysis, locomotor ataxy, general paralysis, and chronic myelitis. In the last named disease it had been followed by marked improvement in the symptoms, but this had only been temporary.

Dr. Robertson said that the impression remained on his mind that there was an element in the brain of the sheep, and doubtless also of other animals, which acted as a stimulus to nerve tissue—cell and fibre—in the human subject in certain morbid states of these structures. He was, however, of opinion that more decided beneficial effects would probably follow the subcutaneous injection of nerve-substance.

Dr. John Ritchie asked Dr. Robertson if he could let him

have the formula of the brain extract, and as to whether the age of the sheep was known to affect its influence.

Dr. R. S. Thomson asked as to the influence of cooked brains, and described partially fried sheep's brain as a favourite dish in Russia.

Dr. Robertson said that he would obtain the formula from the chemist, and would be glad to give it to any members who wished to make a trial of the preparation.

IV.—SEQUEL TO A CASE OF HYSTERO-EPILEPSY SHOWN TO THE SOCIETY IN 1879.

BY DR. ALEX. ROBERTSON.

Dr. Robertson stated that the patient, a young woman, had been shown to the Society in the year 1879 by *Dr. M'Call Anderson*, having been under his care in the Western Infirmary at the time. The case had been shortly afterwards published in the *Lancet*. An abstract of the published report was submitted by *Dr. Robertson* at the beginning of his paper. The feature of special interest which was demonstrated at the meeting in 1879 was the transference of the anæsthesia from the one side of the body to the other under the action of a large magnet, which was brought near, but did not touch the patient. The anæsthesia had also been influenced by the application of gold coins to the affected side. The girl had proved very troublesome in the Western Infirmary owing to her quarrelsome disposition.

Dr. Robertson said that her subsequent career was a very sad one. She had been a certified lunatic on nine different occasions, and was an inmate of asylums for upwards of nine years. For the most part she had been under his own care in the City Parochial Asylum, though she had ultimately died in the beginning of this year in Dumfries Asylum. The cause of death was phthisis pulmonalis. On one occasion only, during her residences in asylum, had anæsthesia been observed, and it had not been so marked as when the girl had been a patient in the Western Infirmary. Hystero-epileptic seizures had been common during the earlier years, but had not occurred after 1886. Her maniacal seizures had then become more frequent, and had ultimately culminated in an attack of acute mania, from which she did not recover.

Dr. Robertson, in reviewing the case, said that it would almost seem that the epileptoid and mental disorders held to each other a substitutionary relationship, and this feature of the disease had been manifested in its early period in

the ready transference of the disease from one side of the body to the other.

Before the last attack of general mania occurred, from which she did not recover, patient's powers of mind had not distinctly suffered in point of general vigour. But Dr. Robertson considered that they were clearly enfeebled in respect of stability; and he was of opinion that Charcot's cases, to which reference was made, showed the same characters. He considered that in certain points the condition of the nervous system in the case was analogous to what it is in the hypnotic state.

It was held to be unfortunate for such patients that the striking phenomena present proved so attractive to medical and other observers, as it tended to concentrate the sufferers' attention on their troubles, which was calculated to maintain and even intensify these disorders.

Dr. Auld had had some well-marked cases of hystero-epilepsy, and was much interested in the subject. He had noticed that, though Dr. Robertson had insisted upon impairment of intellect as a feature distinguishing epilepsy from hystero-epilepsy, he had not referred to Charcot's other chief distinction—namely, the temperature. He (Dr. Auld) had had a patient, a domestic servant, who was subject to exceedingly severe fits of hystero-epilepsy, and who remained partly unconscious, and with distinct impairment of intellect for some time after the attacks, her intelligence, however, in the intervals ultimately becoming completely restored.

Dr. Robertson had spoken of the "transference" of the affection from fits to acute mania. Dr. Auld apprehended that what was meant was that a different area of the brain became affected, and he thought that that was an idea which might be adopted. He had noticed such transference of the affection in cases of hysterical disease—as, for example, in a patient with *hemicrania hysterica*, whose history he had published in the *Lancet* for 15th April of this year. There was thus a tendency for hysteria to attack different parts of the nervous system, while essentially preserving its characters, whether of the convulsive type or of the type of sensory disturbance or pain.

Dr. R. S. Thomson would have liked to have heard something from Dr. Robertson as to treatment. He had seen two cases of hystero-epilepsy, one closely resembling that just described by Dr. Robertson, and had come to the conclusion that, no matter what treatment was adopted, anything new did good for a time. In the first case, the patient had been

having about ten fits each day, and a single dilatation of the *cervix uteri* had been followed by cessation of them, lasting for a whole year. They had then returned; dilatation had been repeated, but without effect; nitrate of silver application had, however, been successful, at least temporarily. The patient had disappeared, and he could not say what the ultimate result had been. In the second case the fits had also been frequent—ten to fifteen nearly every day—with the typical “crucifixion” attitude. Passage of the uterine sound, dilatation of the cervix, nitrate of silver applications had all been followed by temporary benefit. By vaginal examination they had found that both ovaries were enlarged, and, as other treatment had failed to give permanent relief, their extirpation had been considered, but had at first been negatived. The girl had, however, returned and asked that the operation should be performed; both ovaries had then been removed by Dr. William Macewen in the Royal Infirmary. That was six or seven years ago, and since that time there had been no recurrence of the fits. She had married, and was quite well and happy.

Dr. Robertson, in reply to Dr. Auld, said that he had not pretended to give a detailed account of the symptoms of the present case. It was recognised that no rise of temperature took place in attacks of hystero-epilepsy, while in the *status epilepticus* the rise might be very remarkable. The immediate effect of an attack of hystero-epilepsy might be to cause some mental confusion; but between the attacks the intellect was perfectly clear, and contrasted with that of epileptics of years’ standing. He would agree with what had been said about the shifting nature of hysterical symptoms.

As to treatment, he had no difficulty in checking the individual attacks in cases of hystero-epilepsy by a subcutaneous injection of one-tenth grain apomorphine. This was an illustration of the “transference” referred to by Dr. Auld—the “transference” here being to the medulla oblongata. If there were any such cause present as disease of the ovaries, of course this treatment of the attacks would not prevent their recurrence; at the same time, he had had no case such as that described by Dr. Thomson.

V.—CARD SPECIMENS.

DR. MIDDLETON showed under the microscope specimens of Curschmann’s spirals from the sputum of a case of asthma.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1893-94.

MEETING I.—9TH OCTOBER, 1893.

The President, DR. SAMSON GEMMELL, in the Chair.

I.—PATIENT WITH MULTIPLE GUMMATA OF THE RIGHT ARM.

BY DR. T. H. BRYCE.

The patient, a woman, aged 44, was married at 22 years of age, and has one child born a year after marriage, who is still alive and well. She never had any miscarriages. On 9th September, 1890, she was admitted into Ward IV of the Western Infirmary, under the care of Dr. Dun, suffering from an eruption of nine months' duration. It affected the whole body, and had been accompanied by sore throat, loss of hair, and severe frontal headache. It was described in the ward journal as "syphilitic psoriasis," and it steadily disappeared under treatment with the biniodide of mercury. On the 14th October, 1890, when she was dismissed, all traces had disappeared, except some coppery discolouration and a crusted patch on the back of the neck.

Since that date she had taken the mercury fairly regularly, with occasional intervals, but had had none for about three months prior to the end of September last, when the present condition appeared. For it she sought advice at the Dispensary of the Western Infirmary, where I saw her, with Dr. J. H. Carslaw, on 5th October, 1893.

On the palm of the right hand, where there were evidences of some previous skin affection, was an ulcer, small, circular, and with well defined edges. It was deep, and the floor was covered with a whitish grey slough. Over the dorsum of the thumb there was a small, livid-red, fluctuant swelling, tender to touch.

Over the front of the lower third of the forearm were several rounded, red swellings, varying in size, the largest being about that of a hazel-nut. All gave distinctly the impression of fluctuation. Some seemed to be below the skin, while others were in the dermis itself. At the bend of the elbow there were three similar swellings, but the skin

was not reddened over them. None were painful, nor were they tender to touch. There were no other swellings over the rest of the body, unless a very small one in the upper lip; there was a round ulcer in the floor of the mouth.

The iodide of potassium and potassio-tartrate of iron were administered, and considerable improvement was noticed even a week after the commencement of treatment. The skin over the swelling on the dorsum of the thumb had ulcerated, but all the others were softer and smaller, and the skin over them was less red.

Remarks.—The case is shown because, though it presents a typical tertiary manifestation, it is not one very frequently seen. It also illustrates the fact that though the gummatous material is softened to such an extent as to give very distinct fluctuation, it is possible to get rapid absorption under the iodide without further treatment.

[1st November.—Improvement has continued, and the gummata have now almost disappeared.—J. H. C.]

II.—PATIENT FROM CASE OF TRAUMATIC ANEURYSM OF THE COMMON FEMORAL, CURED BY LIGATURE.

By DR. D. N. KNOX.

Dr. Knox's account of this case appears as an original article at p. 340.

Mr. Maylard raised the question as to whether it would have been possible to treat the present case by the method of extirpation, which he had adopted in a case formerly reported, and which was so strongly advocated by Kuebler (see *Transactions Glasgow Pathological and Clinical Society*, vol. iv, p. 157). Although the tumour in his own case had been a small one, he had found the operation to be rendered rather difficult by the adhesions which had formed, and by a numerous plexus of veins.

In reply, *Dr. Knox* said that he did not think it would have been possible to dissect out the aneurysm in his case, on account of the thinness of the anterior wall, and on account of the large number of small vessels which proceeded from the tumour. Traumatic aneurysms were not so common that one could afford to make many experiments in regard to them; in the present case he was satisfied with the method which had been adopted, although there was no doubt that it involved healing by granulations rather than by first intention.

III.—CASE IN WHICH THE OPERATION OF CHOLECYSTOTOMY
HAD BEEN PERFORMED FOR BILIARY CALCULI.

BY DR. W. F. GIBB.

Mrs. D., age 62, was admitted to Paisley Infirmary on 2nd June, 1893, complaining of frequent attacks of severe pain in the epigastric region, passing back to the right shoulder blade, and at times also passing to the left side, both in front and behind. The most intense pain was experienced an inch or two below the liver in the neighbourhood of the gall-bladder, but behind, below the right scapula, it seemed to be often almost equally bad. Sometimes, also, associated with these more distressing symptoms, there was some pain near the umbilicus. She had had eleven children, was of intemperate habits, and had a rather aged and worn look. She dates the beginning of the attacks from February last, cannot tell exactly how many distinct attacks there have been, but thinks half a dozen. In April, she was treated in the medical ward for a severe attack of pain occurring in the same regions. In May she was admitted to the Burgh Poorhouse, suffering from another severe attack; I saw her then, and observed that during the painful spasms the abdomen became so enormously distended as to explain at once the diagnosis of phantom tumour upon the admission order. After purgatives and opiates the abdomen became flaccid, and soon after, on examining her during a recurrence of the pain, a tumour in the situation of the gall-bladder was obscurely felt. This tumour varied from day to day, sometimes scarcely palpable below the border of the tenth rib, and again reaching down from it about $2\frac{1}{2}$ inches. It was rather firm, of somewhat uneven surface, and extremely tender. There was no jaundice. Patient's general health at that time might be said to be fairly good otherwise, good appetite, tongue clean, temperature normal, and on cessation of pain she felt well. She passed from observation for several weeks, and when admitted to the Infirmary was suffering as before described: no jaundice, urine normal, bowels fairly regular, formed motions of normal colour, containing no gall-stones. The slightest handling of the tumour, when present, caused great pain for hours, so that she usually required an opiate. Temperature, 98.5° to 100.2° .

13th June.—She is steadily losing strength, and the attacks show no tendency to abate. To-day I found her suffering severe pain, vomiting frothy mucus, while the tumour, which could scarcely be defined, was very tender. Temperature, 99° .

14th June.—Much easier, slightly jaundiced. Rectal temperature, 102°. Tongue dry and furred.

15th June.—On examining previous to the operation it is observed that the tumour, which was believed to be gall-bladder, is not to-day palpable. Under chloroform a vertical incision was made, extending downwards $2\frac{1}{2}$ inches from tip of tenth rib. On opening the peritoneum, omentum presented. Pushing this downwards small intestine was exposed, and after separating some adhesions, the border of the liver was seen behind the rib. Drawing the bowel and omentum firmly downwards, a small portion of the gall-bladder was seen rather deeply situated, and attached all round to the intestines by firm adhesions. With forceps the gall-bladder was pulled up into the wound, surrounded by sponges, secured by silk sutures at each end, and opened. It was found to be much thickened, and its mucous membrane congested. About 3 ounces of clear greenish fluid exuded, some thick reddish mucus followed, and then by means of a scoop fifteen small soft gall-stones were removed, together with some calculous *débris* (specimens shown). A large drainage tube was placed in the bladder, and the wound closed around it.

21st June.—The stitches were removed to-day. Temperature normal, patient is much stronger and has no pain. There is a free discharge of clear mucus, containing little bile. Jaundice passing off.

28th June.—To-day eight stones passed by the fistula. Patient sitting up in bed.

A week later she was able to be up.

10th August.—Until a few days ago patient has been able to walk about, but the fistula has recently closed, and now she is once more suffering pain. The cicatrix was incised again, and a quantity of clear fluid escaped.

25th August.—The fistula is almost closed. Patient is looking well, and insists on going out, contrary to advice.

Remarks.—It would seem that here the inflammatory process extended from the mucous membrane of the gall-bladder to its outer covering, causing striking thickening of its walls, and adhesion of its peritoneal surface. The bladder apparently emptied itself of fluid contents frequently, but probably stones did not pass the cystic duct till a day or two before operation, when there was some blocking of the common duct and the first appearance of jaundice. The deep situation of the gall-bladder, its comparatively contracted condition, and the firm adhesions, rendered the operation somewhat troublesome.

Dr. Knox had had several such cases, and quite agreed with *Dr. Gibb* in attaching importance to the adhesions which formed around the gall-bladder. In his last case he had removed over 250 stones from the gall-bladder as well as 2 oz. of a clear fluid, slightly milky, certainly not of the ordinary colour of bile, and, he thought, not containing much of the ordinary constituents of bile. The difficulty of the case had depended upon the fact that surrounding the neck of the gall-bladder there had been a number of very strong adhesions between the lower surface of the liver and the intestines. The parts had been so matted together as to render it impossible to identify them satisfactorily; and the matting had, besides, interfered with the ordinary discharge from the gall-bladder, although apparently it had not to any extent interfered with the common bile duct, as there had been no jaundice for some time before patient had come under observation. She had, however, had severe pain, occurring in paroxysms, and there had been a manifest tumour; *Dr. Knox* had, accordingly, operated, and a great measure of relief had thus been obtained. That the relief was not complete was to be explained by the adhesions. Since the operation several additional stones had come away, as they became loosened; it was possible that some might yet remain, but he did not think so.

IV.—SPECIMEN OF TUMOUR OF THE CEREBELLUM.

By *DR. R. S. THOMSON.*

The following notes of the clinical history of this case were submitted by *Dr. John F. Fergus* :—

“*J. P.*, æt. 23, clerk, was admitted to *Dr. Finlayson's* ward in the Western Infirmary on 19th September, 1893, under the care of *Dr. Thomson*. He complained of very severe headache (‘tremendous sore head’) of about a year’s duration, and recently increasing in severity. He also complained of disturbance of vision, taking the form of ‘diplopia.’ On 2nd February, 1893, he had seen *Dr. Meighan* at the Eye Infirmary, who said he was suffering from ‘optic neuritis.’

“Patient attributed the onset of his illness (a year before admission) to exposure to cold and wet. He was at that time confined to bed for about five weeks, and was, he said, unconscious. He had had to give up his regular employment as a clerk, but had been able for some light work till about three weeks before coming to hospital, when he had to desist on account of the pain in his head.

" *Family History* unimportant.

" *Personal History*.—Patient had enjoyed good health, with the exception of ailments of youth and adolescence. He seemed to have been fairly temperate, except on Saturday nights, when he might drink to excess. There was no history of syphilis, but he had a gonorrhœa some seven years ago.

" *Condition on Admission*.—The pain of which he complains is of extreme severity, mainly occipital in situation, though also to some extent frontal. It is more severe between 11 and 12 o'clock at night. There is no pain in the eyes, but there is some in the ears. He has marked difficulty in speaking, or, as he says, 'I can hardly speak at all.' The difficulty takes the form of slurring and general indistinctness rather than in the use of the wrong words. There is no pain in the limbs, but he complains of pain in both shoulders running down from the neck. He has also had severe attacks of gastric pain and vomiting, coming on quickly, and associated, he thinks, with the pain in his head. He also regurgitates food and medicine through the nose.

" He is a well-developed young subject, intelligent, and able to give a good account of his symptoms and ailments, but has a noticeable difficulty in expressing himself, especially when he has to use long words, and then the slurring is well marked. There is no obvious paralysis of the facial muscles, though there is, perhaps, a slight lack of expression on the left side as compared with the right. There is also no nystagmus, but the conjunctivæ are injected, and the pupils show a peculiar slow contraction and dilatation, of no special rhythm, and independent of the application of stimuli.

" Very well marked retraction of the head is present, and patient lies in bed on his abdomen, with his head well bent back. His breathing is heavy, and nasal in character. There is no dulness of hearing, and he has no auditory phenomena of a subjective character.

" There is no paralysis of the limbs, but there is a good deal of staggering when he attempts locomotion. This staggering is apparently due to vertigo. No special direction can be named as that in which he tends to fall. He is very restless as he lies in bed, and the reflexes cannot be properly tested; there is, however, response to hot and cold applications.

" The pulse is slow (numbering 54), full, and of regular rhythm. The respirations are somewhat irregular. He has no cough or any complaint as regards the respiratory system, and nothing abnormal can be detected in the circulatory system.

"Sensation is not impaired; if anything, there is slight hyperæsthesia, a needle-prick causing apparently severe pain and retraction of the limbs.

"*Report on Examination of the Eyes by Dr. Thomas Reid.*—Well marked papillitis in both eyes. The centre of the papillary eminence measures 1 mm. in height, the elevation extending some distance beyond the disc in both. The vessels can be traced from their point of emergence throughout the whole of their course, those of the left being diminished in calibre. In the right the veins are congested, partially embedded in their course, and lost in the disc; their point of convergence is veiled in the disc, especially at the inner side. The reflex is deeper in tint throughout the whole fundus, indicating an œdematous condition of the retina. In the upper margin of the left are patches of glistening, which indicate degenerative processes. The field of vision does not seem impaired.'

"*29th September.*—Patient died to-night somewhat suddenly. Since admission he has had intense occipital headache, with violent retraction, both of these symptoms being constant, but associated with more severe paroxysms. He had very great difficulty in swallowing, which culminated this morning in complete inability. He has been in a stupefied condition, more or less, for the past few days, but has had no convulsions.

"The urine contained neither sugar nor albumen at any time, was of acid reaction, with a slight flocculent or mucous sediment, and a specific gravity of from 1018 to 1025."

With regard to the duration of the case, Dr. Fergus remarked that Lebert had noted the *average* duration of malignant tumours (cerebral) to be a year and a half, the longest five years, and the shortest three months.

Dr. R. M. Buchanan, in showing the specimen and a drawing of it, which had been prepared by Mr. Alex. Macphail, read the following report of the *post-mortem* examination made by Dr. Coats:—

"Permission is obtained to examine the head only.

"On exposing the surface of the brain a bulging is observed suggesting accumulation of fluid in the ventricles. On incising the corpus callosum on either side, over 4 oz. of a pellucid watery fluid are obtained. All the ventricles are found greatly dilated, but there is no softening of the brain substance; in fact, the fornix is, if anything, unusually tenacious.

The optic thalami on either side are somewhat flattened and the posterior crura of the fornix are stretched over them, thinned and adherent. Viewed from above, the cerebellum as a whole is enlarged, measuring 9 cm. from before backwards, and 10 cm. from side to side. On its upper surface, and in the posterior half, there are several rounded fleshy projections, the most distinct of which is nearly in the middle line, and has a diameter of 2.5 cm. This posterior part of the cerebellum is somewhat bulged and rather soft. The growth extends forwards over the upper surface of each lateral hemisphere as a thin whitish layer.

"The internal surface of the skull presents great irregularity, there being depressions corresponding with the convolutions, and ridges often pretty sharply edged between them. The fluid removed from the ventricles has a specific gravity of 1005, and its reaction is neutral. It gives no reaction with Fehling's solution. It becomes slightly clouded on boiling; the precipitate is not redissolved by a drop of nitric acid. Alcohol produces an opalescent precipitate.

"The microscopic examination shows the tumour to be a round-celled sarcoma."

Dr. Coats remarked on the interest of the case, referring to the extreme degree of dilatation of the ventricles, and to the absence of softening of the brain tissue. In tubercular meningitis, dilatation of the ventricles was one of the prominent facts, and in that disease the fornix and parts around, especially posteriorly, were often quite diffuent. In the present case there was rather an increased consistence.

Dr. Renton asked as to whether the tumour had been localised clinically, and spoke of the importance of tabulating the symptoms in all such cases in order to assist diagnosis in future.

Dr. Fergus replied that on account of the severity of the occipital pain, it had been concluded that the tumour was likely to be towards the posterior part of the brain. The patient had been in hospital only for a few days, and during most of the time had been in a condition of semi-stupor, rendering detailed examination impossible.

In reply to a further question from *Dr. Renton*, he stated that percussion of the skull had not been employed.

Mr. Maylard referred to the unilateral dilatation of superficial veins which had assisted *Dr. Parry* in the diagnosis of his case (see *Transactions of the Glasgow Pathological and Clinical Society*, vol. iv, p. 218). Part

of the difficulty in such cases was no doubt due to the fact that, when distension of the ventricles supervened, new symptoms arose to mask those of the original tumour. He would ask Dr. Coats if he could state in what part of the cerebellum tumours were usually situated, and if there was anything in the situation of such tumours to explain—by pressure on the *iter* or on veins—the resulting distension of ventricles.

Dr. Coats replied that in the present case the position of the tumour was such that one would not expect pressure on the veins of Galen. At the same time it had caused enlargement of the cerebellum as a whole, and thus there would be pressure upwards towards the tentorium, explaining interference with the venous return and distension of the ventricles. His impression was that cerebellar tumours were usually associated with such distension.

Dr. Workman also referred to the importance of considering the increase in the bulk of the cerebellum as a whole, even when the tumour was situated in one of the lateral lobes. He considered that the distension of the ventricles was to be explained in some cases at least by interference, not with the veins of Galen, but with the foramen of Majendie, as had been pointed out by Mr. Clark (see *Glasgow Medical Journal*, 1893, vol. i, p. 226.)

V.—SPECIMENS FROM CASE OF COLLOID CANCER OF THE STOMACH, WITH EXTENSIVE INFILTRATION OF THE MUCOUS MEMBRANE OF STOMACH AND DUODENUM BY THE NEW GROWTH.

DR. R. M. BUCHANAN.

Dr. Buchanan showed naked-eye and microscopic specimens from this case. The following are abbreviated clinical and *post-mortem* reports:—

C. M'K., aged 38, housewife, was admitted to the Western Infirmary, under the care of Dr. Tennent, on 12th September, with swelling of the abdomen and jaundice. She had rheumatic fever nineteen years ago, and again in the end of last year. Flatulent dyspepsia followed upon the latter attack, and this began to be associated with vomiting, in June. Jaundice appeared in the middle of August. There was oedema of the legs, and the urine contained bile, albumen, and tube casts.

Post-mortem Examination.—The pericardial, pleural, and abdominal cavities contain bile-stained serous fluid. There is marked fibrous thickening of the mitral curtains, with some contraction of the orifice, and slight thickening is notable in

the aortic and tricuspid curtains. The lungs are highly cedematous, and present tubercular cicatrices. The kidneys and spleen appear normal, but the suprarenal bodies are much enlarged by tumour tissue. The prevertebral glands are similarly greatly enlarged, and their cut surfaces yield a bile-stained, glairy, gelatinous substance. Some of them also show yellow opaque areas of necrosis. Before disturbing the relations of parts, it is found that there is an extensive development of tumour tissue involving the pyloric end of the stomach, the pancreas, the common bile-duct, and the lymphatic glands, and forming a mass of considerable bulk. Further examination displays a large ulcer of irregularly circular outline, about 2 inches in diameter, with a fairly well-defined raised margin, situated postero-superiorly near the pylorus, and a remarkable, almost uniform, tumour infiltration of the mucous membrane, extending from the ulcer towards, but not involving, the fundus of the organ. This infiltration extends also in the other direction through the pylorus along the duodenum for a distance of eight inches, rendering the surface white, and the valvulæ conniventes more or less rigid and rounded. The pancreatic tissue is almost entirely replaced by tumour tissue, and there is much matting together of surrounding parts. The pancreatic duct is no longer traceable, and the common bile-duct is involved in and obstructed by the growth. A thin pale bile-stained fluid distends the gall-bladder. The liver is soft and infiltrated with bile, and there is a very notable tumour-infiltration of the capsule of Glisson.

Microscopic examination of the growth reveals the characters of colloid cancer. The colloid degeneration is far advanced in the prevertebral glands and pancreas, and is present only in a slight degree in the stomach, duodenum, and liver. The tumour-infiltration of the mucous membrane of the stomach presents under the microscope an almost uniform layer of cancerous tissue replacing the normal structure, and this transformation is only less advanced in the duodenum.

This case presents some points of interest relative to the natural history of cancer generally, and of cancer of the stomach particularly.

1. It illustrates, on the one hand, the common tendency of colloid cancer of the stomach to extend continuously along the mucous membrane, and, on the other, the very rare occurrence of the extension of this cancer along the mucous surface of the duodenum continuously from the stomach.

2. In its extension in the liver the growth has not formed

isolated tumours, but appears to the naked eye (and under the microscope) along the lymphatic channels. It is seldom that this mode of extension is so well exemplified.

3. The condition in the duodenum suggests very strongly an infective process. It looks as if an infective agent had been absorbed in passing over the mucous surface, as the new growth is frequently seen in the villi, causing a bulbous swelling of their apices.

Dr. Coats thought that the case was one of great interest, and possibly of considerable importance, and he hoped that *Dr. Buchanan* would work it out more fully in the direction of the points to which he had himself alluded. In the meantime he (*Dr. Coats*) might say that he had been accustomed to believe that a cancer of the stomach stopped short at the pylorus; that had been his experience up to the present at least, and the fact had been difficult of explanation if one accepted the theory that cancer was due to a parasite. Here, however, was a case where the growth had spread beyond the pylorus. Again, the microscopic appearances, also, were in his experience quite unique. The villi had obviously been absorbing the cancerous material, whatever it might be, and might be seen to have bulbous expansions, at their tips, from cancerous growths. In these expansions the formation was mainly glandular—there were acini, with here and there an attempt at a lumen. Another point which was also of interest was the mode in which the extension had occurred in the liver, there being an injection of vessels in the capsule of Glisson. The usual extension to the liver was by the portal veins and into the blood capillaries of the lobules. Here there was extension into the capillaries of the capsule of Glisson—whether into the blood capillaries or into lymphatic capillaries remained to be seen. He had seen this mode of extension several times before, but it was unusual, though not so unusual as the other points to which he had referred.

At *Mr. Maylard's* suggestion, *Dr. Buchanan* undertook to bring up the case again at a future meeting.

VI.—SECTIONS OF NODULE OF MOLLUSCUM CONTAGIOSUM.

BY *DR. CHARLES WORKMAN.*

The sections were obtained from a patient in the dispensary of the Royal Hospital for Sick Children, from a nodule of molluscum on the neck, which was excised and placed in spirit to harden. It was afterwards embedded in celloidin, and cut with *Schanze's* microtome; the sections were then

stained with Biondi's solution, and mounted in Canada balsam.

On examining the sections under the microscope, the nodule is seen to consist of masses or lobules which are not unlike enlarged acini of a sebaceous gland, and which at their periphery have a layer of columnar epithelial cells. Internal to this columnar layer there are cubical or rounded cells. The nuclei of both these sets of cells take on a light blue colour from the Biondi. In the cubical cells near the periphery small clear spaces or bodies can be observed; and, as one passes to cells nearer the centre of the lobule, these are seen to be gradually larger, and to acquire nuclei or bodies in their interior which take a purple colour from the Biondi. These bodies, as one passes towards the centre, are found to increase in size until they entirely replace the cubical cells, and become stained either a dark purple or a brown colour, or in some parts seem to lose their staining power, and leave only a colourless shell.

Dr. Coats thought that it was perhaps a little premature to apply to the cells described in molluscum contagiosum the name of "parasitic micro-organisms." Even *Ruffer*, in his most recent paper on parasitic bodies in cancer, said that there was no definite proof that they (the cells in molluscum) were psorosperms. He would remark, also, that though the appearance of the molluscum lesion very strongly suggested an origin in the sebaceous glands, and though that origin had long been considered established, he agreed with the more recent view that the origin was in the hair follicles.

Dr. R. M. Buchanan said that this was the second case of molluscum contagiosum which he had examined within the last few months. The point which had struck him particularly about both was the extraordinary similarity between the bodies present in this lesion and those found in the lesions of cancer, and of the disease occurring in rabbits under the name coccidiosis. In molluscum contagiosum there was, in the growing layer of epithelium, a quite evident beginning of the development of these bodies, and one could study progressive growth to a clear oval-shaped body of the size of a squamous epithelial cell. In coccidiosis in rabbits there was a similar gradation, culminating in the stage recognised as that of full development. In cancer there was first a minute body, with a dark outline, and a centre like a nucleus; this could be traced onwards to a large body with a nucleus, with radiation of its protoplasm, and with a capsule. He thought, therefore, that molluscum contagiosum and coccidiosis threw a valuable

side-light on the parasitic origin of cancer, and, while having deference to the opinion of Ruffer just mentioned, he could not agree with it. Molluscum was inoculable; but it must be remembered that at least two months might elapse before any evidence of the new growth was forthcoming.

Dr. Coats said that he had only meant that one should speak with a certain degree of caution. He did not wish to minimise the importance of the analogy, as might be judged from his own paper on the subject (see *Glasgow Medical Journal*, 1892, vol. ii, p. 375).

Dr. Workman, in reply, stated that he was not yet satisfied as to the micro-organisms, but hoped to have further opportunities of studying the subject. His strong impression was that the papules did originate in sebaceous glands. Pressure caused a "worm" of white material to escape from them, and an opening could be seen just like that present in any small sebaceous cyst which was not molluscum. The masses of epithelium took on much the form of the acini of sebaceous glands, although the inner masses did look more like hair-cells or tooth-cells than anything else in the human body. The contagious nature of the papules had been well illustrated in his case, an older one and a younger one having been seen on exactly corresponding parts, one on each side of a deep fold of the skin. He thought that there had also been some spreading from scratching.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

The Intra-Uterine Tampon.—*Dr. A. F. Currier* read a paper with this title before the Pan-American Medical Congress in September (*New York Medical Journal*, 16th September, 1893). Dilatation, curetting, and drainage were the three principal foundation stones upon which intra-uterine treatment might be said to rest. From dilating the uterus to packing the cavity with a tampon was a logical step. The vaginal tampon was an indirect and often unsatisfactory means of relieving uterine trouble. The intra-uterine tampon went directly to the source of the trouble, and had opened up a new field in intra-uterine therapeutics. Sterilised gauze was the material which offered the greatest number of advantages for such a tampon. In the unimpregnated uterus its use was for:—(1) Exploratory and operative purposes in connection with disease of the uterus and its appendages, (2) hæmorrhage, (3) endometritis, (4) stenosis, (5) accumulations within the Fallopian tubes.

In the gravid uterus the intra-uterine tampon might be used in place of the vaginal tampon to bring on uterine contractions and empty the organ, or occasionally to ward off an abortion. In placenta prævia it might be of signal service. With uncontrollable vomiting, the presence of a dead foetus or serious mechanical obstruction in the parturient canal, the tampon was preferable to bougies, bags, or tents, for the purpose of inducing an abortion. During parturition it might be used to assist dilatation if the first stage was protracted. *Post-partum*, the tampon was useful for hæmorrhages, as recommended by Dührssen, also for the hæmorrhage which followed abortion, and for sepsis, either after abortion or labour at term, in connection with curetting and irrigation. If there was subinvolution, the tampon was indicated also, for it stimulated the uterus to contraction, and produced free depletion.

In the unimpregnated uterus it was useful for dilatation in the presence of new growths, whether benign or malignant, especially if slow dilatation was desirable. If the appendages were to be removed for inflammatory disease, a precedent curetting and tamponing would be useful by producing free drainage and depletion. The tampon in these cases was a substitute for the uterine tent.

Dr. Currier advocated the tampon also in the profuse menstruation of anæmic girls, the hæmorrhage of hypertrophy and inflamed endometrium. In suppurative and hypertrophic endometritis or inertia of the uterine muscle with venous stasis the tampon was serviceable, as also in stenosis.

In tubal disease its use was more limited, though it might deplete the cornua and the parts of the tubes immediately adjacent.

The tampon should be used with caution, but there were many cases where it might be safely and properly used in "office" and dispensary practice, especially if it was not inserted beyond the os internum. It did not often require the use of an anæsthetic. It should usually be preceded by curetting, irrigation, and sufficient dilatation to permit of easy introduction of the gauze strips of which it was composed. It might safely be left for three days. It was better to renew it frequently and secure gradual distension than to pack in too much material at the first sitting. With care it might be employed in any case where intra-uterine treatment was not contra-indicated.

Dr. R. B. Maury recommended the intra-uterine tampon after curetting in cases of *post-partum* septic infection.

Uterine Rotation.—Dr. J. Haig Ferguson read a paper on this subject before the Edinburgh Obstetrical Society in January of this year. (Reprinted from *Edinburgh Medical Journal*, April-September, 1893.) Dr. Ferguson had some years previously read a paper on a variety of *post-partum* shock arising, in his opinion, from direct pressure of the hand on the ovary during the delivery of the placenta by "Crede's method." He then ascribed this accident to the pressure of an ovary on the front of the uterus, brought into that position by the rotation of the uterus. He dismissed the results of observations by means of frozen sections on the cadaver, maintaining that these could not by themselves determine the positions of the organs in the living subject. He said that the greater the muscular contraction and retraction, the more marked is the rotation, adducing, as a comparison, the rotation in life of the contracting heart.

Dr. Ferguson thinks it clearly established that the unimpregnated uterus, in addition to its inclination forwards, and its usual deviation to the right, is rotated on its long axis in the vast majority of cases so as to bring its left border forwards. This rotation becomes more marked as pregnancy advances; this, according to Dohrn and others, is due to the pressure of the rectum. He quotes many observers in proof of the fact of rotation in pregnancy; among others, Schroeder and Winter, who found the left edge forwards in frozen sections, and E. Martin, who found the same condition in a Cæsarean section where lordosis was present. Schroeder believes the rotation is due to the position of the child in utero, that side of the uterus which corresponds to the back of the child being rotated forwards. With this view Dr. Ferguson does not agree.

Spiegelberg believes the rotation to depend mainly on an inherited tendency, but that it is increased by the small depth of the abdominal cavity in the middle line, owing to the prominent spinal column as well as by the force of gravity, in consequence of most women lying on their right side in pregnancy. With this view, Dr. Ferguson agrees so far, but thinks there are other factors. First, the traction of the round ligaments: the left ligament is inserted higher on the uterus than the right. Secondly, the asymmetry of the distended bladder which bulges more on the right, thus pushing back the right border of the uterus, while the rectum pushes forward the left border. These factors, of course, act while the uterus is still a pelvic organ, but will help to give it a "set" in the direction indicated. Besides these an intrinsic cause is found in the arrangement of the middle layer of the muscular fibres of the uterus. In opposition to Schroeder, Dr. Ferguson believes that the rotation causes the position of the child in utero.

In the third stage of labour, and immediately *post-partum*, the same rotation was observed. Dr. Ferguson maintains that the uterus after labour is rarely in the middle line, being pushed to the right by the rectum, and if the bladder be distended the fundus is pushed to the left. He again quotes Schroeder, who found the uterus to one side and rotated in 146 cases out of 150.

In consequence of the uterine rotation an ovary is brought to the front. In fact it may come to lie in the middle line, and may be under the median incision in a Cæsarean section.

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

New Experimental Researches on the Motor-Cortical Centres of the Larynx.—Dr. Masini performed these not with electric stimulation and removal of portions of the cerebral cortex, but with local application of cocaine (solid grains of this substance) and injections of a cocaine solution coloured with aniline. This was to answer Semon and Horsley's experiments, which were in contradiction with the first experiments of the author. According to Masini, there was a crossed influence, and in unilateral impairment only there occurred a glottic paresis. The present conclusions are identical with those formulated by the author in the year 1886, and he affirms that Semon and Horsley have not separated the effects which he allies to electric stimulation and the removal of cortical substance. Even allowing largely for this, it was not possible to obtain a complete paralysis, or a complete and permanent loss of the vocal function. Hence the necessity of admitting that other portions undertook a compensatory function for the destroyed portions, and the existence of sub-cortical centres.

The conclusions are as follows:—

1. Upon the cortex of the brain of the dog there are two bilateral centres, which regulate the movements of the opposite side of the larynx.

2. These centres are connected with other motor centres, and particularly with those presiding over the glottic function.

3. When one of these centres is impaired or destroyed (whatever may be the manner) there does not follow paralysis, but a glottic paresis, on account of the presence of crossed and direct fibres.

4. Bilateral impairments produce a more evident and persistent paresis, without reaching the degree of a true paralysis.—(*Boll. delle Malattie dell'Orecchia del Naso*, July, 1893.)

Results of the Surgical Treatment of Laryngeal Phthisis (based on 252 cases).—Dr. Theodor Herying, Warsaw, contributes two valuable papers on this interesting subject. The author is one of the most enthusiastic workers in this department, and he gives the details of his

treatment by scraping. He says:—"I have undertaken surgical treatment, especially in hospital practice, even in the more advanced cases, when there was a high degree of dysphagia, and in spite of the hopeless condition of many of the patients, because I have formed the opinion, based on a relatively large material, that this method, especially when there are infiltrations of the posterior wall of the larynx or of the epiglottis, in a short time mitigates the dysphagia, removes tension of the inflamed areas, and excites and promotes cure, although it be but partial. The patients, with a few exceptions, bear the surgical measures exceedingly well, and it has frequently been my experience that on a relapse taking place they have earnestly begged me to repeat the operation, which at the expense of so little suffering had given them so much relief. With a proper application of cocaine and perfect manipulation this proceeding causes but slight discomfort, especially if good, sharp instruments be employed.

"The wounds usually heal in from ten to twenty days, without any complication, if the after-treatment is carried out carefully, and with due regard to the following very important particulars:—Immediately after the operation the surface of the wound must be protected from infection and injury. Blue pyoktanin (Merck) in one to two per cent solution has proved in my hands an excellent antiseptic in the after-treatment. This is applied at first twice, and and after a few days once, in the course of twenty-four hours. It prevents suppuration and swelling, cleanses the wound surface, and hastens cicatrization."—*Journal of Laryngology*, August and September, 1893.)

New Literature.—Of the series published under the title of "Bibliothèque Medicale," and edited by Drs. Charcot and Debove, none are more interesting than the following:—"Les Neuropathies Laryngées," par Dr. H. Luc; "La Diphtérie," par Dr. H. Bourges; "Amygdalites," par Dr. A. Sallard; "Les Poisons Bactériens," par Dr. N. Gamaleïa. (Rueff et Cie., Paris.)

"Throat and Nose," by Lennox Brown. Fourth Edition. (Baillière, Tindall & Cox.)

"Diseases of the Ear, Nose, and Throat." Burnett. (Lewis, London.) The two volumes of this great new American work can now be got. It is edited by Charles H. Burnett, of Philadelphia. The different chapters are by well known specialists.

DISEASES OF THE EAR.

By DR. WALKER DOWNIE.

Chromic Acid in Chronic Otitis Media.—In the *Therapeutische Monatshefte*, No. 7, 1893, the results obtained from the use of a 3 per cent solution of chromic acid in chronic suppuration of the middle ear are given by Dr. Katy. He recommends its use in distinctly chronic cases where there is a large perforation in the membrana tympanum, and in which there is granulation tissue. The ear should be carefully cleaned by syringing, and the free use of Politzer's bag, after which the meatus and tympani must be thoroughly dried. Then from 6 to 8 drops of a 3 per cent solution of chromic acid are instilled by means of a papette, and allowed to remain for two or three minutes, after which the parts are syringed with warm water, the meatus plugged with absorbent cotton; where this has been repeated several times a week he has obtained marked decrease, and in many cases complete cessation, of the discharge within a short time.

Three Cases of Unintentional Opening of the Lateral Sinus.—J. E. Sheppard, M.D., reports three cases which occurred in his practice, where he accidentally opened the lateral sinus while endeavouring to

expose the mastoid antrum. The first case was that of a man aged 64, with symptoms of suppuration deep in the mastoid following an attack of influenza. After the bone had been exposed, the first tap of the mallet on the chisel perforated the bone as if it had been an egg-shell, and a quantity of pus escaped. When the pus was cleaned away a large cavity was exposed to view lined with granulation tissue; while this was being cleared away with a curette a sudden flow of venous blood occurred, which, however, was readily checked by pressure, and the scraping of the granulations completed. The part was then further explored, and the probe employed was readily passed for a distance of close on 3 inches into the cranial cavity. The mastoid cavity was cleaned out by syringe with carbolic lotion, and packed with iodoform gauze, and the patient made a perfect recovery with the exception that he had repeated attacks of vertigo for a time after. Regarding this last point, Dr. Sheppard queries "In the absence of a bony wall between the mastoid and cranial cavities, could the cicatricial contraction have caused sufficiently increased intra-cranial tension to account for the symptoms?"

The second case was in a lady aged 21, who suffered from an acute inflammation of the mastoid associated with a sub-acute middle ear catarrh. The tissues over the bone were very much infiltrated, periosteum was loosened and separated from the bone. The bone was so softened at one point that it was easily scooped out with a sharp spoon. The underlying cavity was filled with pus and granulation tissue, and as the upper part of the cavity was being cleared it was dried by means of a cotton pledget, and as the pledget was removed it was followed by a free flow of dark venous blood. The cavity was firmly plugged with iodoform gauze, and the part firmly bandaged. Recovery was rapid, and without the occurrence of any untoward symptom.

The third patient was a woman aged 55, recovering from an attack of "grip," and who had pain in the right mastoid which was unrelieved by the application of leeches and of cold. On operating, pus was found in the superficial cells immediately under the cortex, and after this was cleared away Dr. Sheppard proceeded to expose the antrum. While doing so the lateral sinus was opened, though he appears to have kept well forward, and close to the posterior wall of the external auditory canal. The wound was packed and tightly bandaged, and it healed rapidly.—(*Archives of Otolaryngology*, July, 1893.)

A Series of Cases of New Growths of the Ear.—J. O. Green, M.D., describes a number of interesting cases of new growths in connection with the ear, which have been under his care.

Epithelioma of the Auricle—Amputation—Recovery.—This occurred in a man, 60 years of age. The tumour affected the anterior portion of the auricle; had been present for two years, and there was no involvement of glands. The auricle with the cartilage down to about the middle of the cartilaginous meatus was removed; a portion of the lobule and the tragus were retained to support an artificial auricle.

Epithelioma of the Meatus—Removal of the Cartilaginous Meatus—Recurrence—Death.—This occurred in a woman of 80, with a history of otorrhœa for two years. The meatus was filled with a firm growth of broad base springing from superior and anterior walls of meatus. The auricle and cartilaginous meatus were dissected up from behind, and the whole cartilaginous meatus, with the growth attached, removed. After a few weeks, recurrence took place, and, as it increased in size, right hemiplegia occurred, and the patient died.

Primary Sarcoma of Meatus—Removal—Recovery.—The patient was a girl of 17, with an indefinite history of pain in, and discharge from, the right ear. At the first examination a round fleshy tumour was found on the anterior wall of the cartilaginous meatus, with infiltration of the tissues around. By microscopic examination the structure of the tumour was seen to be that of a sarcoma of giant-cell variety. All affected tissue was removed by curette, and the patient made a good recovery.

Cavernous Angioma of the Auricle—Ligation of the external Carotid—Removal—Recovery.—The patient, 25 years old, was born with an angioma on upper

part of right auricle, which increased in size as time went on, and which latterly ulcerated and bled freely. The whole auricle was a mass of tortuous vessels, and it measured 4 inches from its upper to its lower edge. The external carotid was tied, and immediately all pulsation in the tumour ceased, and the tumour became less in size. Fourteen days after the operation hæmorrhage occurred, and removal of the tumour was performed with successful results.

Angioma of the Tympanum.—This occurred in a man of 40, who had no aural complaint till after an attack of influenza, when he suffered from noises in the ears. Paracentesis was performed to relieve this symptom, but it was followed by profuse hæmorrhage. Later, a red pulsating mass was seen, the pulsations of which were reduced by pressure over the common carotid. Firm pressure was applied over the growth by pledgets of absorbent cotton, introduced through the meatus, and by this means the tumour was reduced in size, and pulsations ceased.

Another *Angioma*, in connection with the tragus, is briefly described. It was superficial, well-defined, and small, and readily removed.—(*Archives of Otolaryngology*, July, 1893.)

Caries of the Entire Pyramid of the Temporal Bone.—Dr. Max Thomer describes a case of a child with discharge from one ear, beginning shortly after birth, and whose auditory canal was filled with polypoid granulations when two years old. These granulations having been removed, an opening in the posterior and upper wall of the meatus was exposed, leading into a cavity containing a mass of necrosed bone. This, which was removed, is said to have been the whole pyramid. The child came of a phthisical stock, but no tubercle bacilli were discovered in the sequestrum.—(*Cincinnati Lancet Clinic*, June, 1893.)

A Method of Transillumination of the Mastoid Cells as a Means of Diagnosis in Mastoiditis Interna Suppurativa is described by Dr. Caldwell in the *New York Medical Journal*, 15th July, 1893. His apparatus consists of a small electric lamp of two or three candle power, protected by thin rubber tubing fenestrated at one side. This is inserted into the meatus, and with the fenestrated part directed backwards, the mastoid is illuminated, and, if healthy, a ruddy glow extends from apex to the lateral sinus, while if pus be present, the part is dull. In other cases the lamp may be placed against the mastoid, and the illumination observed within the auditory canal.

DISEASES OF THE SKIN.

BY DR. A. NAPIER.

Untoward Effects of Antipyrin, Acetanilide, and Phenacetin.—Under the above heading Dr. D. R. Paterson gives, in *The Practitioner* for October, 1893, a *résumé* of the principal unfavourable effects sometimes produced by the drugs named, based largely on the replies (twenty-five, in response to about forty circulars) sent by the members of the South Wales branch of the British Medical Association to the Therapeutic Committee of that Association. We have here, therefore, embodied the results of a "Collective Investigation Committee" on a small scale. Of the manifestations of the unfavourable action of these drugs, confined to the skin, the following may be noted :—

Antipyrin.—Cyanosis; a dull red miliary rash; copious diaphoresis; an urticarious rash involving the whole trunk and limbs, subsiding in a few days, and recurring on two subsequent occasions. Dr. Prince Morrow's experience is quoted thus :—"Ordinarily the rash is provoked by a continuous course of

antipyrin treatment for several days, although, in a large number of cases experimented on, the symptoms did not occur in the exact period during which the largest quantity of the drug was taken. It begins to subside promptly on the disuse of the drug, and generally, but not always, recurs when the drug is again administered. One case is quoted in which the rash is described as erythematous, in small circular patches not unlike measles, appearing over the front of chest and abdomen in an adult after two medium doses; it faded in a few days. Sometimes the patches are larger than here described, and more marked. Of the bullous and scarlatiniform rashes and local œdema mentioned by some authors, this investigation affords no examples.

Acetanilide (Antifebrin).—The only skin manifestations noted are cyanosis, and (in one case) marked pallor and general anæmia, the latter arising from the continued use of the drug.

Phenacetin.—"Skin eruptions, chiefly urticarious, are said to be met with."

Treatment of Acne.—Dr. J. T. Bowen, of Boston, describes as follows the treatment recommended by Buzzi for acne and acne rosacea:—A disseminated acne is first converted into a diffuse inflammation by the use of an ointment composed of 5 parts each of sulphur and starch, 10 parts of green soap, and 20 to 30 parts of lard. A light coating of this ointment is applied in the evening for one or two hours, upon a portion of the face; then the part is bathed in warm water, and powdered with an indifferent powder during the night. Usually, after one or two weeks, a more or less intense inflammation and desquamation of the parts treated are produced, and the acne papules have almost completely disappeared. At this stage the use of ichthylol is begun. The inflamed parts are painted two or three times a day with an ichthylol solution, and covered at night with an ichthylol ointment. Long continued applications of ichthylol have been rewarded with good results in cases in which vascular dilatation coexists with a small number of papules or pustules.—(*Boston Med. and Surg. Journ.*, p. 338, vol. cxxviii, No. 14, 1893; *Practitioner*, October, 1893.)

Alternating Currents of high frequency in Skin Diseases.

M. Oudin reports successful results in the treatment of three obstinate cases of skin diseases by alternating currents of high frequency. The first was a case of psoriasis in a man of 28. This patient had patches of diseased skin on both knees and on his back for five years, which had resisted all forms of treatment. After about three weeks of this electrical treatment, only a slight brownish stain on the skin was left. The second patient was a woman of 35, a rheumatic subject. She had had eczema over nearly all one half of her face for about fifteen years which had varied very little under treatment. Under the alternating currents there had been slow recovery, the skin becoming normal, with a slight flush marking the position of the old disease. The third case was one of psoriasis of twelve years' standing in a man of 37. This yielded very slowly to the electrical treatment. The usual mode of applying the alternating currents was to put the body in contact with a large electrode and draw sparks from the diseased skin by the other electrode. This was painful if the alternation of the currents was not very rapid, but with very high rapidity the discomfort lessened in proportion as the distance between the electrodes increased.—(*Le Progrès Méd.*, p. 104, August, 1893; *Practitioner*, October, 1893.)

Influence of Solar Rays on the Skin.—Dr. Robert L. Bowles contributes an unusually interesting and exhaustive paper on this subject in the August number of the *British Journal of Dermatology*, p. 237. He maintains that it is not the heat alone of the sun's rays which causes sunburn, but that there must be some other active principle at work. He quotes the well known fact that "sun on snow burns more quickly than on rocks or in the heated valleys at a lower elevation," though the heat rays must then be occupied in the melting of the snow, and thus rendered latent. Again, glass-

workers, and others, are constantly exposed to a heat of four or five hundred degrees Fahrenheit, and yet do not become burnt. Dr. Tyndall's experience is referred to:—"He was never more burnt on the Alpine snows than he was whilst experimenting with the electric light at the North Foreland lighthouse, where there was no heat sufficient to produce such an effect, and where no snow was present." Other matters of interest connected with snow-burning, and some curious cases, are mentioned; its modification according to the traveller's colour and complexion; the susceptibility of the nerves of the skin; effects on the eye (snow-blindness); the dark colour acquired in the Upper Alps by the *châlets*, where they are exposed to the combined influences of sun and snow; the curiously brown colour of the complexion of those who spend their winters in the Engadine. The author mentions the singular fact that the presence of a freckle protects the skin from inflammation on exposure to the sun. In one case "the face was much swollen, but I observed that it was pitted in various parts, and that each pit corresponded to a freckle." Basing on this, and on the known beneficial influence of a brown veil and brown glasses, he tried, on his own person and on friends, the influence of pigments of various shades as protective agents against the sun's rays, and his general observation was that "where paint *was*, there was no burning, and where it was not, there was inflammatory action more or less severe." He has further proved, by thermometric observations, that on snow, as compared with rocks and grass, sunburning was most marked while, of course, on snow, temperature was lowest. He differs from Professor Langley, who ascribed his burning at high altitudes to his being nearer the sun and in a clearer atmosphere; he points out, as against this view, that "at low elevation—on the earth's surface, on the sea or rivers, and on certain sands and rocks—one may be severely sunburnt, and that at higher elevation one will not be burnt on grass and rocks of a different nature and colour; whereas one is at once burnt on snow at such a height." The writer then refers to snow-blindness and to sunstroke, which, in his experience, "is not heard of in mountainous regions." Some curious experiences are then quoted as to protection from sunstroke by the use of a *yellow* lining in the clothes and hat, the idea being that the body behaves much like a sensitive plate in the sun, and is thus influenced by the chemical rays rather than the heat-rays. The officer (an Indian official) who contributes this experience, passed through five very hot seasons in the East, and under much exposure, with complete immunity, after having been previously invalided for five years as the result of an unsuccessful *ten months'* endeavour "to fight the sun." The author's observations on the complexion of those who winter at Davos, and on the colour of Swiss *châlets* at high altitudes, are curious. His whole subject he sums up in the following conclusion:—

- "1. That heat *quâ* heat is not the cause of sunburn.
- "2. That there is strong evidence for believing that it is caused by the violet or ultra violet rays of light reflected from the snow, which reflected light is not necessarily of the same quality as that which is incident.
- "3. Captain Abney finds that the violet or ultra violet rays are very strong at high altitudes, and believes that altitude has much to do with sunburn.
- "4. That altitude alone does not explain sunburn, for one may be sunburnt [escape burning?—A. N.] on rocks, say, at 10,000 feet, and yet be immediately affected on descending to a glacier 3,000 or 4,000 feet lower down.
- "5. That sunburn and snow-blindness arise from similar causes, and that sunstroke may be associated with them.
- "6. That rays from the electric light produce much the same results as sun-rays reflected from snow.
- "7. That the bronzing of the skin and the browning of the wooden *châlets* are probably produced from rays reflected by snow."

The Therapeutics of Skin Cancer. Dr. Oscar Lassar (*Berliner Klin. Wochenschrift*, 1893, No. 23).—Dr. Lassar's paper is one on the curability of skin cancer by the internal administration of arsenic. After referring to the benefit sometimes brought about by erysipelas, he relates how it was he first

came to use this method. A man, æt. 50, consulted him on account of three separate skin cancers, one of which had gone too far for operation. Arsenic was ordered and the condition of two of the tumours rapidly improved. One of them disappeared, the second skinned over, and the third was still increasing when the patient unfortunately died. In a second case a cancer on the nose of an old woman apparently completely healed, but the patient had not been long under observation.

A third case was a woman aged 75. The tumour, the size of half a walnut, developed in *six or eight months*, and disappeared in less than two. In a fourth case, the duration of which is not stated, a cancer disappeared in two months.

The fifth, in a man æt. 55, looked suspiciously specific, but treatment on these lines had no effect. This tumour was 5·5 cm. in circumference, 1·8 to 1·6 broad, and had appeared in *three months*. Its depth was 4 cm. to 5 cm. It was much improved in six weeks, and altogether disappeared.

The counsel of an authority to substitute any other remedy but the knife in the treatment of cancer should be very advisedly given, and very carefully considered, for the tendency for patients and many doctors is to persevere so long in any treatment rather than submit to the knife, that the disease advances beyond the reach of treatment.

The microscopic drawing from Case 1, the case which did not improve under treatment, is undoubtedly that of a rodent ulcer. Whether the other tumours from the same case which disappeared presented the same characters we are not informed, and presumably no examination was made.

The appearances in the drawing from Case 3 are, in our opinion, not sufficiently pronounced to enable one to say definitely that it is epitheliomatous, while that from Case 5 is even less distinctly epitheliomatous, and Lassar himself describes it as an atypical epithelial growth. Similar appearances to these last two preparations may be seen in many conditions, such as syphilitic, tubercular or even simple healing ulcers. They present atypical epithelial growth and nothing more.

Cases 2 and 4 were not microscopically examined.

A notable point is the rapidity with which the last four of these tumours grew—a rapidity which is unusual in true cancer of the skin when not near a mucous surface. The histories too are not sufficiently detailed. Even with the German disregard of history, we should consider it important to know whether there had been any irritation, and what was its nature. The tumours on the skin of paraffin workers, distinctly epitheliomatous in structure, frequently disappear spontaneously, leaving a healthy scar. Spontaneous disappearance is, however, practically out of court in these cases. The coincidence would be too remarkable.

In view, however, of the very grave responsibility of recommending such a treatment, one feels it a duty to point out that except in that case which did not improve we are not convinced of the cancerous nature of the growths. Other sections may have been more demonstrative, but if so they would probably have been selected for publication, and we will therefore be well advised in waiting for more definite information before recommending in the treatment of epithelioma or rodent ulcer any other remedy than the knife.—(*The British Journal of Dermatology*, August, 1893.)

Notes upon an Outbreak of an unusual form of Skin Disease in Greenock Parochial Asylum and Poorhouse. By F. A. Elkins, M.B.—We have here (reprint from the *Medical Press and Circular*, 5th April, 1893) an account of an outbreak of skin disease exactly like that so fully recorded by Dr. Thomas B. Savill, as occurring in London in 1891. The characters of the disease, its constitutional symptoms, its fatality, &c., all closely correspond with those of the affection described by Dr. Savill. As to its cause, Dr. Elkins' remarks are worthy of note:—

"The cause of the outbreak was most obscure. The question of food and water was considered and excluded. Scabies, a too familiar disease in Greenock, was also carefully excluded. Although nothing very definite was

discovered, Dr. Wallace was, and still is, strongly of opinion that the cause of the outbreak was to be looked for in the laundry. The clothes were evidently badly washed, and much soap and dirt could be extracted from 'clean' clothes by washing in clean water. The lunatics, few of whom were confined to bed, hardly suffered at all. On the other hand, amongst the ordinary paupers there were many sick, infirm, and bed-ridden, and these were the victims. It seemed as if those lying between the sheets, and those handling much linen, such as warders, were most liable to be affected; yet, on the other hand, the nurses did not suffer."

Alopecia Areata.—Mr. Hutchinson, writing on alopecia areata and its relations to ringworm, arrives at the following conclusions:—(1) It is probable that all the cases that are well characterised by abruptly rounded and quite smooth patches are of one and the same nature as regards causation, though possibly there is some slight exception to this in reference to syphilis. (2) It is probable that all cases of well characterised alopecia areata are in some connection remote or direct with the presence of a cryptogam. (3) Many cases—probably the majority—occur in patients who have at some former period themselves suffered from ringworm. (4) A few cases occur in those who have never shown signs of ringworm, but who have at some former period been exposed to its contagion. Some cases occur in adults as the direct result of ringworm-contagion from children. (5) In a few cases it is possible that pityriasis versicolor on the chest of an adult may be the cause of alopecia areata on the scalp. (6) There are a few cases in which ringworm assumes from the first the features of alopecia areata. These may occur both in children and in adults. (7) Lastly, the explanation of the frequency with which alopecia areata begins on the back of the head is probably that it is caught by contagion from the backs of chairs and cushions.—(*Archives of Surgery*, April, 1893; *Practitioner*, September, 1893.)

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ORIGINAL ARTICLES.

THEN AND NOW;

OR,

THE PROGRESS OF SURGERY DURING THE PRESENT CENTURY.*

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It has often been remarked that never, during the whole course of the world's history, has so complete a revolution of the manners, habits, and even modes of thought of the people taken place in so short a space of time as that which distinguishes the nineteenth century. It is the more remarkable because it has not affected a solitary empire or a single race of men, but has influenced in a greater or less degree all the people of the habitable earth, even to the pigmy races of the forests of Central Africa, and the dwellers within the Arctic circle. The magic wand of science has brought about in this century a more marvellous transformation than any dreamed of by seer or poet, and beside the history of which (if rightly taken), the tales told by Scheherezade are tame and uninteresting. To travel from London to Glasgow in $8\frac{1}{2}$ hours, or

* An address introductory to a course of lectures on Surgery, delivered at St. Mungo's College, Glasgow, 19th October, 1893.

cross the Atlantic in $5\frac{1}{2}$ days; to "put a girdle round the earth" in less than half the 40 minutes in which Puck promised to do it; or to converse by telephone with a friend 400 miles away; these are gigantic achievements, and mark well the practical issues to which the facts and theories of science have in these later days been worked out. But these are but solitary outstanding instances among "a multitude which no man can number," whereby all the varied industries of man carried on in deepest mines, in lonely villages, in crowded cities, on mountain slopes, and on the broad highway of the sea, have been changed and rendered more effective and more rapid. To write the history of all the changes (great and small) which have resulted from the fact that man has made steam his servant, and imprisoned the forked lightening for his use, would be to give an account of the growth of all the nations of the earth in physical well-being, mental culture, and political freedom. It is not too much to say that even to the most remote tribes and nations there has travelled some breath of the mighty changes which this century has wrought, and there is not a lonely hut in moorland wild, or mountain fastness, but contains evidence that our progress has been wide and deep.

It has seemed to me a fitting occasion, on entering to-day on the duties connected with the chair of surgery, to take a retrospective review of our position, and to ascertain what advances we have made in regard to surgical diagnosis and treatment, or in other words, what has been the "Progress of Surgery in the Nineteenth Century."

Foremost of all the advances in surgical practice should be placed the discovery and use of anæsthetics, for although the century had nearly half gone before their use became general, and their advantages acknowledged, by far the larger number, and the most important of the operative gains we have to chronicle, depend on the changed conditions under which operations are now done.

It is impossible for us to have any idea of the horrors of the operating room in the pre-chloroform days, when the patient was able to see and hear what was being done; when every cut of the knife produced torture, and the yells, screams, and groans of the poor patient produced wide-spread dismay among the neighbours or patients in the hospital. We hear of six strong men being necessary to hold a patient down during the amputation of his leg, and we marvel at the skill and self-possession of the surgeon who, under such circumstances, could operate at all.

In diagnosis alone the gain from the use of anæsthetics has been immense ; we are so accustomed when in doubt to "give a whiff of chloroform" and clear up our difficulties, that we can understand how doubtful must have been the conclusions arrived at when such aid was not available. There is, however, this modifying circumstance, that in the classes of cases where anæsthetics are of most use in diagnosis—namely, in tumours of the abdomen and diseases of joints, no operative treatment in former times was possible, even if the diagnosis had been more accurate.

It is still difficult in many cases to bring our patients to contemplate an operation with equanimity, and we are often tempted to make too light of its dangers and difficulties in our desire to calm the not unnatural apprehensions raised. But those apprehensions are inconsiderable now compared with what they were when the patient knew the scene of horror and pain through which he had to pass. Many favourable cases for operation were, for this very reason, taken out of the hands of the surgeon ; or such procrastination and delay ensued as led to the most favourable time and condition for operation being past, and it was at last performed when there was little hope of a successful issue. Nor was this the worst result from the terror of the knife, for many recorded cases show that deaths on the operating table were by no means uncommon, and that under such conditions as show that either fright or shock was the indisputable cause of the fatal issue. Cline mentions the case of a gentleman who was sounded for stone. "On being informed that there was a calculus, he was exceedingly struck, and said he should never survive. In about five hours afterwards, though there had been no previous indisposition, he expired." Travers also reported the case of "a man who was the subject of strangulated hernia, and expired suddenly during the steps preliminary to an operation, though the circumstances were, in other respects, such as to afford the fairest prospect of relief."

Nor was the surgeon himself altogether unaffected by the scene in which he was so important an actor. Cheselden was the greatest operator of his time, and it is on record that in St. Thomas's Hospital alone, he performed lithotomy over two hundred times ; yet Ottley, in his life of John Hunter, tells us that "Cheselden's manners were exceedingly kind and gentle, and notwithstanding the extensive practice he had enjoyed, he always, before an operation, *felt sick at the thoughts of the pain he was about to inflict*, though, during

its performance, his coolness and presence of mind never forsook him."

One of the most essential points in an operation in those days was that it should be done as expeditiously as possible, and it was the boast of a surgeon that he only occupied so many minutes in completing the work, or so many seconds in the actual process of cutting. Everything, therefore, was sacrificed to the haste inseparable from such a painful proceeding, and it is well known that secondary hæmorrhage was then a common instead of (as now) a rare occurrence, and that complete removal of a cancerous growth was very rarely possible.

Further, the need for rapidity in operation rendered impossible all the more delicate manipulations and dissections now so frequent and so successful, and prevented the invasion by the surgeon of the abdominal and other cavities of the body.

As a result, then, of the general use of anæsthetics in surgical work, we have secured more prompt, effective, and accurate diagnosis, have minimised the fear of the operation on the part of the patient and friends, and its effect on the surgeon, have in large measure reduced the shock, and made it possible for the operator to do everything carefully and without undue regard to the time occupied. Simpson was able to show that in amputations of the thigh there was during the first year of the use of ether in this country a reduction of the mortality of not less than 11 per cent, and that in some other operations the results were still more favourable.

Year.	Patients.	Operations.	Per Cent.	Year.	Patients.	Operations.	Per Cent.
1836,	1,071	121	11·3	1881,	2,733	953	34·8
1837,	893	137	15·3	1882,	2,950	1,070	36·2
1838,	1,070	120	11·2	1883,	2,916	716	24·3
1839,	1,332	75	5·6	1884,	2,877	795	27·6
1840,	1,176	120	10·2	1885,	2,782	848	30·5
1841,	1,280	90	7·0	1886,	2,765	955	30·9
1842,	1,160	125	10·7	1887,	2,880	1,216	42·2
1843,	1,079	165	15·2	1888,	2,986	930	31·1
1844,	1,066	140	13·1	1889,	3,228	1,106	34·2
1845,	1,383	175	12·6	1890,	3,150	1,152	36·5
1846,	1,474	173	11·7	1891,	3,045	1,233	40·4
1847,	1,085	178	16·4	1892,	3,218	1,129	35·4*
Average for the 12 years, 11·5 %				Average for the 12 years, 34·0 %			

* It is also interesting to note that while in 1835 amputation constituted 37 per cent of all operations, in 1892 they stood at a little less than 20 per cent of the whole.

The use of anæsthetics has led to an immense widening of the area of practical surgery, and to a consequent great increase in the number of operations performed. The foregoing table shows the number of surgical cases treated in the wards of the Glasgow Royal Infirmary, and the number of operations performed, in two periods of twelve years each. The first period embraces the twelve years immediately before the introduction of anæsthetics, the second gives the last twelve years of the hospital statistics. In the latter the operations are about three times as numerous as in the former.

The whole range of abdominal operations has been the result of the use of anæsthetic agents, and not less so those on the brain and spinal cord, the pelvic viscera, the thorax and its contents, the larynx and pharynx, the nasal cavities and the mouth. It would be indeed impossible to exaggerate the debt of gratitude which surgery owes to Sir James Simpson and the other pioneers in the use of chloroform and ether, and it is equally impossible to sum up all the advances in that science which have followed directly or indirectly upon their use.

Next in importance we reckon antiseptic treatment, which, although the growth of only the last twenty-five years, has given an impetus to surgery (and especially to the operative branch of it) such as it has never experienced before. It is quite true that the germ theory, on which antiseptic treatment rests, is still (in spite of the accumulated mass of evidence in its favour) held by many to be a figment of the imagination. But the results obtained by this mode of treatment are so magnificent as to justify its adoption even should the theory be discredited or exploded. It has modified the practice even of those who most strenuously deny its value, and has influenced medical theory and practice as well as practical midwifery to the infinite good of the sick patient and the parturient woman. The attention to small details, the accuracy and care, which are essential to the successful practice of antiseptic surgery, have had their influence on medical science in all its branches, and have led to more careful and accurate diagnosis, as well as more effective treatment. People who scoff at antiseptics, and yet assert that the whole thing is a matter of cleanliness, overlook that they are conceding almost as much as enthusiasts on antiseptics demand—for cleanliness implies the removal of something which, if left, would cause septic change, and be followed by constitutional infection. Whether that something

is animal, vegetable, or chemical is, after all, not of the first importance to the surgeon to know.

A friend has quoted to me a witty and pregnant saying of a Leeds surgeon. Contrasting the surgery of the past with that of the present, he says, "Then, we used to wash our hands after the operation was done, now we wash our hands before we commence." The phrase seems trivial, but means much. The pollution feared in the former times was the pollution of the surgeon by the patient, now it is of the patient by the surgeon. This change has led to minute carefulness in the details of the operation, the arrest of hæmorrhage, the removal of septic material, or that likely to harbour it, such as granulation tissue, the perfecting of drainage, the avoidance of pockets and cavities. Further, antiseptic surgery emphasises the importance of air which is pure and uncontaminated, of water free from organic impurity, and even of food which is wholesome and good. But the highest claim we can make for it is that it has materially reduced the mortality of all operations, and has very widely extended the area of successful surgical interference. The surgeon in this latter end of the nineteenth century is bold even to rashness: he does not hesitate to operate freely within the dreaded peritoneal cavity, to excise portions of the bowel, to empty the gall-bladder; he invades the pelvis and the thorax, and the cranial cavity is not removed from the reach of his restless fingers. He does all this because he has confidence that if he does not succeed in doing good, he can avoid doing harm; and his confidence rests on his experience of the results of antiseptic methods. The surgeon has, since the birth of the antiseptic treatment, invaded the province of the physician, so that the definition of surgery which I find in a work published in 1819 no longer holds good. It runs as follows:—"Surgery consists in the application of remedies to *external disorders* and the performance of operations." He deals with the kidneys, liver, spleen, stomach, intestines, lungs, uterus, ovaries, bladder, rectum, brain, and spinal cord; indeed, it would seem that the only organ which has not been the seat of surgical operation is the heart, and even here the surgeon has got so near to it as to operate on the pericardium. If antiseptic treatment had not thus lessened our mortality and widened the field of surgical treatment, we should still have ground for fervent gratitude that it has practically banished hospital gangrene, rendered septic infection infinitely less common than when I first studied in the Royal Infirmary, and materially lessened in quantity and improved in odour that pus which we now no longer consider "laudable."

It is something of which we may be justly proud that the first experiments made by Lister were carried on in the wards of the Glasgow Royal Infirmary. His successors in the wards have endeavoured to carry out consistently the principles he has enunciated, and the managers have spared no expense to make the condition of the hospital such as to secure the best results to the increased number of operations.

In no department has surgery made such rapid strides as in all that relates to the treatment of the diseases of the abdominal and pelvic organs. In the forefront we must mention ovariectomy, which may be regarded as essentially the product of the present century, although antiquarian researches have established the fact that solitary operations were performed both in the seventeenth and eighteenth centuries. It seems only a few years ago since an eminent surgeon stated it as his opinion that a surgeon whose patient died as the result of ovariectomy ought to be tried for manslaughter; and now it is so common an operation that every surgeon and every gynaecologist considers himself competent to perform it. The results also are so wonderful that with one surgeon the mortality is actually less than the average mortality of healthy women of the same age, and another surgeon (not less eminent) sums up the thousands of years he has added to the aggregate of female life in the course of a successful career as an ovariectomist. Normal ovariectomy or Battey's operation is quite a different matter, and must always be of very limited application; it is noteworthy in this connection that the operation of spaying women was practised in Rome in classic times, but for other reasons than the relief of suffering or the cure of disease.

One of the most notable effects of the success of ovariectomy was the dissipation of the erroneous notion so long entertained as to the risk of intra-peritoneal operations. Up to the middle of the present century the surgeon had such a horror of setting up peritonitis, and was so convinced that if he did cause that disease a fatal result was almost sure to follow, that he treated the peritoneum as if it were sacred, and not to be touched by any right minded operator. No doubt he had reason for this caution, for septic peritonitis was, and is, one of the most fatal diseases the surgeon has to combat. But while it is true the peritoneum absorbs septic matter more rapidly than any other membrane—probably because of the numerous stomata which place it in direct connection with the lymphatic system—it is also true that under conditions of absolute cleanliness and asepticity, intra-peritoneal operations are essentially simple, safe, and satisfactory.

The removal of uterine fibroids by the operation of hysterectomy has been attended by an encouraging degree of success, and in cases where their size constitutes a disability, and even a danger, or where the excessive flooding menaces the life of the patient, no one can doubt the wisdom or necessity of the operation. Yet in its early days the operation was so little successful that Boinet, writing in 1870, collected 79 cases which had been operated on, with 27 recoveries; but in nine of the latter the operation had been abandoned, so that there were really only eighteen successes. He strongly reprobated the operation in cases where it was possible for the patient to live without surgical interference. Since that date our views have undergone considerable modification, but the operation is not now recommended wherever it is possible to wait for the uterine changes associated with the "change of life." The fatality of the early operations of extirpation of the uterus led surgeons to make experiments with electrolysis, and we owe it to Apostoli especially that this method of treatment was worked out with such enthusiasm and thoroughness. The results, unfortunately, are not by any means so great or so lasting as the apostles of the method led us to believe, and the disappointment experienced is no doubt proportionate to the high expectations raised. Seeing that in many cases under this treatment there was a notable reduction of the tumour, although it did not amount to a cure, it will be a pity if the reaction against the "Apostoli boom" should be so great as entirely to discredit a mode of treatment which in many instances might prove of much service.

On the general field of gynæcology I will not presume to enter. The science is not only the product of this century, but especially of the last thirty years, and it may be admitted that (in spite of not a little quackery) the claims for a place for it in the list of medical studies has fairly been substantiated. As the diseases are largely the product of artificial conditions of life, and the outcome of the advanced civilisation we boast of, we can but hope that the progress of gynæcology will be checked by a greater respect for the laws of health, and that the time will come when women will not be encouraged to think of their sexual organism as one whose tendency is always to go wrong.

The discovery that the peritoneal cavity was not the Pandora's box it was once supposed to be has led to wide-spread results in general surgery. Of these, the most marvellous, undoubtedly, is the excision of the pylorus and neighbouring portions of the stomach, of which we have now on record a

respectable number of successful cases. Although Rydyger was the first surgeon who actually removed the pylorus, it is to Billroth and his assistant, Wölfler, that we must give the credit of working out the details of the operation to a successful issue, and it is their success which has caused it to be adopted by surgeons in all parts of the world. In case of carcinoma, however, the disease has usually advanced very far before diagnosis is possible, and it is this consideration which has led in recent years to the adoption of the methods which aim at re-establishing the fæcal channel rather than the removal of the disease. Of these methods probably gastro-enterostomy has been the most practised and the most successful; by the aid of Senn's plates it has been rendered simple and expeditious, yet we look for even better results when practice has rendered us sufficiently expert to do without scaffolding of that kind. The other modifications—such as pylorectomy and gastro-enterostomy, duodenostomy, jejuno-stomy—are still on their trial, and the limits of their use have yet to be defined. The same may be said of pyloroplasty and Loretta's operation. Gastrotomy has proved a safer operation than would *a fortiore* have been predicted, while gastrostomy for simple and cancerous strictures of the gullet has added some years of life, and given much relief to the poor sufferers on whom it has been performed.

Gun-shot wounds of the intestine are fortunately not very common in this country; but in America, where revolvers are toys which boys of all ages play with, they are not infrequent, and many American surgeons have been able to record successes in excising and suturing portions of wounded intestine, such as would have suggested to our forerunners of the beginning of the century the reputed transatlantic weakness for "tall talk." And yet we have no reason to doubt the veracity of the records, for our cases, if less numerous, have not been less wonderful. Senn's ingenious use of hydrogen gas for inflating the bowel, as an aid in finding perforations of the wall, is a new departure, of which we may anticipate further development.

In the treatment of strangulated hernia we can at least claim that the mortality of herniotomy is considerably less than it was even fifty years ago, the improvement being mainly due to the early period at which we do the operation, and (in less degree) to the use of antiseptic measures. We trust less to the taxis, and have less confidence in nature's power to set things right than our predecessors, and our results seem to justify our position. The excision of gangrenous

bowel, and the careful stitching up the sound portion, has been much practised of late ; and, although a large proportion of the cases have proved fatal, enough have recovered with a perfectly restored alimentary canal to justify the hope that better results will accrue to us in the future.

In the diagnosis and treatment of intestinal obstruction, much still requires to be done before the surgeon will have the confidence and satisfaction he seeks ; for it can only at present be said that the operation of opening the abdomen, seeking for and relieving the obstruction, is very fatal, and would not be performed so often as it is but for the certain fatal issue if no operation is attempted. Rochard, writing in 1875, stated that "all the operations communicated during the previous twenty years to the Society of Surgery had terminated fatally, while the literature of the subject did not yield an authentic case of cure. But," he adds, "the disease is without cure, death is inevitable, and we must not proscribe an operation which gives a last chance." It shows some progress that, since the date mentioned, a considerable number of successful operations have been chronicled, and I have strong hopes that the near future will see still more success in grappling with these anxious and trying cases.

Excision of the rectum may be taken as another example of the operations characteristic of the age, being a bold attempt to give relief, if not to cure, in a disease which causes great distress and anguish, and is absolutely incurable without operation. If, in such cases, we save a life now and then, or give more certain relief than can be obtained by drugs, we accomplish much.

The surgery of the brain and spinal cord has undergone a marvellous development in these later days, and it seems strange to me to look back to the time when trephining was looked upon as too dangerous and too useless to attempt. To describe all that has been accomplished by the aid of the trephine, the circular saw, the rongeur forceps, and the elevator, would be to give a long and interesting lecture, but would be beside my present purpose. If the surgeons of the nineteenth century had done nothing notable besides opening cerebral abscesses, removing tumours of the brain, and trephining for Jacksonian epilepsy, their record would still be such as to deserve to be transmitted to future ages. In this work the progress of the surgeon has been dependent on the advance of physiological research, and the more exact knowledge of anatomical detail.

Operations for the cure of congenital or acquired deformities

are, in the main, the product of the present century. It is true that plastic operations were done several centuries earlier for the purpose of making new noses and eyelids; but the cure of club-foot and wry-neck, of curvature of the spine, and of the deformities left by burns and cancrum oris, are especially the product of this century. I must not lead you to believe that tendons were not cut in cases of club-foot at an earlier date. They were so, but the operation was always done by the open method, and the consequent contraction not only reproduced the deformity, but often made it worse. It is to Stromeyer, especially, that we give the credit of establishing on a firm basis the practice of subcutaneous tenotomy, and his writings on the subject appeared in the years 1833-40. But, besides the operative work, we must signalise as important aids to treatment the use of massage and gymnastics, and the greatly improved orthopædic apparatus which the mechanicians have from time to time devised.

Of the operations on the kidneys and ureters, of those on the spleen, pancreas, gall-bladder, and liver, time will not allow me to speak; they might themselves fill a book, and would, if dilated on sufficiently, make good my assertions as to the progress of surgical science and practice. But I must pass them over.

Of operations on the urinary bladder, it is imperative that I should mention lithotrity as a substitute for lithotomy. As lithotomists, the surgeons of the last century distanced us by many leagues, and that for two reasons—viz., that we now have (for some reason) nothing like the number of stone cases they had to deal with, and secondly, that we have substituted crushing the stone for lithotomy in a very large number of cases.

I have in my possession an old English dictionary, the author of which was James Knowles, the father of Sheridan Knowles, the playwright and poet. In that book, on the usual blank page behind the title, is this note—

“N.B.—Look for a New Word after the last word in P, and a further explanation in an added Page at the end of the Preface.”

The new word thus indicated is *Lithotriptist*, and the meaning is “A professor and operator in the recently discovered art of Lithotripsy; which consists in breaking, triturating, and pulverizing the stone in the bladder, and removing all the particles of it. The word is here, with thanks to God, a sense of duty to the public, and a deep feeling of gratitude to the

Professor Baron Heurteloup, associated with his name ; he having on Saturday the fourth of April, in presence of several surgeons and physicians, in about five minutes operated upon the author, whose age is seventy-three, without giving him much uneasiness ; and by his consummate skill, not only relieved him from a state of suffering, which he had endured for twelve months, but preserved his life, which, in all human probability, he must have lost under the operation of lithotomy." This book is dated 1838, and we have thus a definite time from which to date the commencement of the operation for crushing stone. There is at present rather a reaction against lithotripsy, and a return to one of the earliest forms of lithotomy—namely, the supra-pubic operation ; but in suitable cases lithotripsy still holds its own.

Prostatectomy, or the removal of tumours growing from the prostate gland, or even portions of the gland itself, is yet in its infancy, and it is all too early for me to pronounce any decided opinion as to its range of usefulness, or the dangers which accompany it. The cystoscope and the rectal bag have brought the bladder within sight and touch, so that it is now possible to deal effectively with conditions of that viscus which were formerly beyond the reach of the surgeon. The excision not only of tumours of the bladder, but of tuberculous ulcers, has been strongly advised, and one surgeon has gone so far as to suggest that the ureters should as a preliminary measure be turned into the rectum, and that thereafter the whole of the bladder should be excised in cases of extensive tuberculosis of the organ.

One of the most outstanding features of the surgery of the nineteenth century is the tendency to specialise, or in other words, for a man to take up a small department of surgical work and confine his attention and practice almost exclusively to that. Thus we have specialists on the eye, the ear, the throat, the skin, diseases of women, stricture of the urethra, venereal disease, fistula, &c., &c. No doubt this specialism has its faults, and it cannot be denied that it has associated with it a great deal of very gross quackery. At the same time it must be acknowledged that the principle of subdivision of labour which has accomplished so much in the industrial arts, has not been without its uses in medical and surgical science. The truth is that with the rapid growth of all kinds of scientific knowledge, it is impossible for any man, however able, to be kept abreast of progress in all departments, and he is consequently obliged to select what he will work at, and content himself with a little corner of the vast field of

surgical practice. The specialism of this latter time has led to immense progress in all the special departments; in the study of diseases of the eye first, as the oldest and best established specialty, but also in that of the diseases of the ear and the larynx, and to a less degree in the other departments mentioned. No more magnificent achievement was ever performed by a surgeon than the excision of the larynx, and it is worth remembering that the first operation in Great Britain was performed by one of the staff of the Royal Infirmary, and that it has been more frequently performed in this Hospital than in other in the kingdom.

Before closing my all too prolix address, I must not omit to refer to the use of "instruments of precision" in the aid of surgical diagnosis and treatment. The stethoscope is regarded as a medical instrument, but the surgeon is no stranger to it. Our long familiarity with it may lead us to forget that it is a child of the present century, and was brought into prominence by Laennec in the twenties. The ophthalmoscope, of much later date than the stethoscope, has been the means of opening a wide field of investigation not of the eye alone, but of the brain, and has done away for ever with the truth of the gibe that between amblyopia and amaurosis the difference was this: in amblyopia the patient could see something, but the surgeon could see nothing, while in amaurosis neither the patient nor the surgeon could see anything.

Next came the laryngoscope, which has not only proved of inestimable value to the surgeon, but has led to the development of laryngology as a wide and lucrative specialty.

The cystoscope, urethroscope, proctoscope, endoscope, all have resulted from the electric light becoming available and manageable. Their range of use is at present limited, but I am satisfied that the first of them has a sphere of considerable usefulness in the future; like the ophthalmoscope and the laryngoscope, it requires much practice before the results are satisfactory, but there is the additional difficulty in manipulating inside the bladder, that it is not at all times easy to keep the contained fluid clear enough for the transmission of a definite image of the bladder wall.

The electric light does good service in other ways than these, and whenever operations have to be performed in a confined space or cavity, or whenever a thorough exploration is called for, the light is both convenient and valuable. Of the other uses of electricity in surgical work, time will not permit me to take note.

Indeed, the changes have been so great, and the advance so

palpable and enormous, that it is impossible, within the limits of an address of this character, to do more than refer to the most outstanding and remarkable—and the ground I have already traversed will probably suffice to give you some idea of the country beyond. To trace philosophically and fully all the circumstances which have led up to and produced the changes herein described, would necessitate a discussion of the growth of our knowledge of physiology and pathology, and it would be difficult to be sure whither such discussion would lead us, and where it would end.

My purpose has been fully served if I have convinced you that, with regard to surgery as with every true science and art, the words of Tennyson may be applied in all their fulness—

“Yet I doubt not, through the ages one *unceasing purpose* runs,
And the thoughts of men are widened with the process of the suns.”

CASE OF MARKED IMPROVEMENT IN GENERAL PARALYSIS, WITH REMARKS ON TREATMENT.

By ALEXANDER ROBERTSON, M.D., F.F.P.S.G.,

Physician to the Royal Infirmary, Glasgow.

THE hopeless feeling that arises in the mind in regard to the future of his patient when the symptoms clearly indicate the presence of general paralysis is only too well known to the experienced practitioner of medicine. Nor will he readily admit that improvement, though it may occur after treatment, is dependent on it, for he knows that temporary lulls in this dread disease of mind and body are by no means rare. Being fully aware of this fact, it is only a thorough conviction that the arrest of the malady for a considerable period was dependent on the treatment adopted which has led me to put the following case on record:—

A. W. J., age 45, sailor, married, admitted into Royal Infirmary on 24th October, 1891. Patient's father died of cancer of the brain; mother lived to a good old age. He has four of a family, all of whom are living, and his wife has had no miscarriages. Until his present illness he was a healthy man, was temperate in alcohol, and denies having had syphilis.

His wife first noticed that he was distinctly ill about nine

months ago. In speaking, he did not pronounce many words properly, and she thought there was something wrong with his tongue. His speech had always been slow, but articulation was correct previously. About a month after this she observed a slight tremor of his hands at meals, and that, when walking, his legs failed him sooner than they should have done. He slept ill at night. During the succeeding interval, before his removal to the Infirmary, his symptoms had not improved; on the contrary, they had become worse.

On admission, patient was seen to be a tall strong-looking man, and apparently in good condition. He had a composed, contented expression, said he was quite well, and did not know why he was brought to the Infirmary. Tested with the dynamometer, the right hand registered 40° on the scale, the left 56° ; previously he was right-handed. Though rather feeble in walking, no special defect was observable. Mentally he was much confused and weak. In conversation he sometimes talked irrelevantly, and appeared to have visual hallucinations, as he said there was a great fire in the air. His whole bearing was childish, and he laughed at the most commonplace remarks. It was difficult to fix his attention, and he did not easily understand what was said to him. There was slight stutter in the pronunciation of words, such as "tolerable, February, constitutional." There was no clear sensory defect of any kind, but he spoke of having a creeping feeling over head. Sight was rather weak; pupils reacted to light and accommodation. Hearing was slightly affected; taste and smell were normal. No defect in organic reflexes. Patellar tendon reflexes were exaggerated. Heart, lungs, and kidneys were free from disease.

He was put on a mixture of potass. iodid. and liq. hydrargyi. perchlor., and on 2nd November a fly-blister was applied to the shaven scalp.

The following entries in the ward journal indicate the after changes in the patient's condition:—

"6th November, 1891—*Note by Dr. Robertson.*—The leading points in this case supporting the diagnosis of general paralysis are the occasional stutter in speech, the weakness in walking, and slight tremor of the upper extremities; the feeble, facile, mental state; and the pleased, contented expression of countenance. He often says he is quite well and strong, but beyond this he has no clear grandiose delusions."

On 25th November a careful re-examination showed no improvement in any respect; on the contrary, the symptoms, psychical and somatic, were rather worse. On this date six

issues, about the size of a shilling each, were established on the scalp over the motor area and a short distance in front of it, by means of *potassa fusa*. They were afterwards kept discharging by unguent. *infus. canthar.*

Within a few days there was a very marked improvement in every particular—mental condition, speech, and power of walking. This change for the better continued, and in January I showed the patient to the annual meeting of the West of Scotland Branch of the British Medical Association, where he was examined by experienced specialists in mental disease. He now expressed a wish to return to his employment, and as that was not of such a kind as would in any way strain his mental powers, it was deemed right to give him a trial. He was instructed to maintain the discharge from the six issues, and to return to the Infirmary for examination at the close of each successive month. It was intended to close the issues gradually if the recovery was maintained.

The following entry in the journal shows his progress up to 21st May, 1892:—

"Note by Dr. Robertson.—Patient was dismissed on 15th February apparently quite well mentally, though possibly a little facile. However, speech was still occasionally slightly stuttering, and there were also now and again fibrillary movements in the substance of the tongue. His power of walking was apparently fully restored. This is his third visit since he left in February. He has been nearly two months at his occupation as a quay labourer, for which he gets 18s. a week. He states that he feels quite well in all respects. Mentally he is composed and not unduly sanguine. A slight defect in speech is still observable. Six issues, chiefly over the motor convolutions, were discharging at the time he left the hospital, but two of them have now healed up, and the others are contracting."

Patient was readmitted into hospital on 19th October, 1892. His wife stated that he had been working steadily till the beginning of September, when his mind became gradually more confused. His memory was greatly impaired. He wandered about the house at night, sometimes did not seem to know what he was doing, and was very irritable. On 12th October he had a sudden attack of unconsciousness, in which he fell on his back. As he recovered from it in about a minute, it was probably of an epileptoid nature, shaking of the upper extremities, which was noticed, lending support to this diagnosis.

On looking at the scalp it was found that all the issues had

healed up except two, which discharged only a little. He complained of pain over vertex of the head, and the action of his mind was slow and confused. The only other change was the diminution of the left knee reflex, while the right was still exaggerated.

The issues were again re-established in his scalp, and in about a week they were once more suppurating freely. The improvement in his mental condition was now most striking. He talked sensibly, and was free from confusion. The pain in his head, he said, had ceased. But notwithstanding this restoration to reason and general change for the better, it was clear that he was more facile and childish, and that his whole mental level was lower than when he left the hospital in February. During his after residence there was little further change, though the issues continued to discharge pus; and as he was now too weak in mind to resume work, there was no alternative but the poorhouse, to which he was removed on 25th January, 1893.

Remarks on Treatment.—The treatment of general paralysis by internal medicines is of no use, except in controlling and perhaps, for a time, removing special conditions, congestive, epileptoid, &c., which arise in the course of the disease. Combinations of the iodide of potassium and mercury, such as was given to my patient, are usually prescribed, more particularly where there is a clear history of syphilis, but they do not check its progress. Many other drugs have been tried, but have proved equally futile in their power to influence the morbid process in the nervous system. Some temporary benefit often follows carefully carried out hygienic arrangements, the withdrawal of all possible sources of excitement, and other measures calculated to soothe the excited brain. Counter-irritation in various forms—seton in the neck, blisters to the head, ointment of tartar emetic rubbed into the scalp, an issue in scalp, the liniment of iodine along the spine, and other derivants—has been employed, and in some cases been productive of improvement, though not lasting.

In the case recorded in this paper there can be no reasonable doubt that the issues, as soon as they were actively discharging, were efficacious in removing much of the morbid condition, and in checking the progress of the disease. An ordinary cantharides blister, previously applied, had no beneficial effect; but, as stated, in about eight days after the establishment of the issues, the change for the better was most marked. The writer was more particularly impressed with the improvement that followed the renewal of this treatment on the patient's

readmission, even though he did not recover his previous mental power. It must be admitted there was a serious error committed in permitting the issues to heal up too soon after the primary, almost complete recovery; it would have been well to have kept them discharging for a year before allowing any one of them to close.

There are two points in regard to this method of treatment deserving of special attention. The first is that it need not be tried when the disease is in an advanced stage. In three other patients where the symptoms were more pronounced than in the foregoing case, its application was not followed by distinct benefit. Second, there ought to be a *number* of issues, which may be formed at the same time, or at two or more sittings, and these should be distributed at regular intervals over the area defined in the report of the case. This *distribution* of continuous and prolonged counter-irritation—the element of novelty in the treatment, it may be remarked—is held to be important, and it will be observed that the region of the cortex over which it is applied is where the most decided pathological changes have been found after death, the region where the disease begins in the great majority of cases. Remedial applications ought to be made more especially over the primary seat of the disease, and it is equally incumbent to insist that the powerful agent here recommended should be used in the earliest stage—as soon, in fact, as the diagnosis of general paralysis has been established.

THE PRESENT POSITION OF THE CYSTOSCOPE IN SURGICAL PRACTICE.*

By JAMES H. NICOLL, M.B.,

Dispensary Surgeon, Western Infirmary; Surgeon for Diseases of Urinary Organs, Glasgow Central Dispensary; &c.

MR. PRESIDENT AND GENTLEMEN,—On a former occasion, when bringing under the notice of the Society a specimen from a case where the cystoscope had been of signal service in establishing a diagnosis, I took the opportunity of referring briefly to the present position of the instrument in surgical practice.

At the present time I am frequently asked by medical

* Read before the Glasgow Medico-Chirurgical Society, 3rd November, 1893.

friends in Glasgow for information regarding the use of the cystoscope, and, from what I have learned in this way, it would seem that there is not a little misapprehension amongst many members of the profession as to the capabilities of the instrument, and, in consequence, a good deal of disappointment with the results obtained from its use. This being so, I have ventured to think the Society will not deem it presumptuous on the part of one who may, in a humble way, claim to have some little experience in the matter, if I attempt to briefly define what may and what may not be expected from cystoscopy.

The aim of cystoscopy is to provide a means of diagnosis in certain affections of the bladder and kidney where the only alternative way of attempting to get at the truth is an exploratory section, and, further, to provide a means of diagnosis in certain cases where exploratory section has been performed, and has failed to reveal the truth. For, in spite of Sir Henry Thompson's warm advocacy of digital exploration of the bladder, such cases do occur, and every surgeon of experience must have recollections of one or two where his finger introduced into the bladder failed to detect the ulcer, or the soft papilloma, or the encysted stone, which nevertheless existed, or where the subsequent development of the trouble proved that the hæmaturia or pyuria which was supposed to be vesical was in reality renal, or *vice versa*.

Probably no class of cases in the whole field of surgery, with the exception of intracranial lesions, presents greater diagnostic difficulties than affections of the bladder or kidney. The true position of the cystoscope as an alternative, or supplement, to exploratory incision in these cases, is now sufficiently recognised by surgeons all the world over to render any attempt of mine to defend it quite superfluous. It is not, probably, too much to say that at the present time no progressive surgeon willingly cuts into bladder or kidney, where the symptoms are at all indefinite, without first employing the cystoscope, both in the interests of his patient and of his own education and reputation.

The surgical side of the profession may, perhaps, be divided, as regards cystoscopy, into three classes:—

I. In the first place, there are those progressive surgeons to whom I have just referred. These men recognise the difficulty of diagnosis in the cases we are speaking of. They recognise that, cystoscopy apart, an exploratory incision into kidney or bladder offers the only means of making a diagnosis. They recognise, further, that exploratory section not infrequently

fails to clear up the case, and that, in any event, it involves all the risks of a major operation, and carries the penalty of at least a month in bed; while cystoscopy, though still also, like exploratory section, pretty frequently unsuccessful, involves comparatively little risk, and, whether successful or not, leaves the patient no worse than he was. Recognising these facts, it cannot be a matter of wonder that surgeons are more and more employing the cystoscope. In *bladder* cases the surgeon who has a moderate amount of experience, and employs a good instrument, may expect an ocular demonstration of the actual site and results of the disease in about half of the cases he examines, and in a considerably higher proportion as his skill increases. In all his successful cases his patients are saved exploratory operation, and in some of them he will be able to make a diagnosis where even operation would have failed him. In a *kidney* case the surgeon without the cystoscope is pretty much in the position of the surgeon in a brain case without the ophthalmoscope. Both may succeed in making a correct diagnosis, but both may fail for lack of the indirect evidence which the instrument could have supplied.

II. The second class may be made to embrace those surgeons who condemn the instrument as of no practical value, and term it a "scientific toy." This class is a steadily diminishing one. Some of its members have, it would seem, never seen a cystoscope in use; others have only attempted work with some of the earlier and more primitive forms of instrument, while others have, while attempting the use of the modern instrument, met with one or two disappointments, and have thereafter abandoned all further efforts.

III. In the third and last class I should place those who, having been carried away by one or two brilliant "hits," are attempting to place the cystoscope on a level, as regards universal applicability to practice, with the ophthalmoscope and laryngoscope.

Nothing I can say can be of any value to members of the class I have placed first, but it may be well if members of the two other classes will direct attention to the following points, and, as members of the third class would seem to be in Glasgow more numerous than those of the second, I shall not weary you with a recital of successful cases. Current surgical literature is full of them, and all of us who use the cystoscope have our lists. What I think may be of more value will be mention of some of the facts to be mastered,

and of the difficulties to be overcome before anyone can expect to learn anything from the cystoscope.

In the interests of brevity and lucidity the facts may be tabulated:—

(1) Facility in the use of the cystoscope has to be acquired by practice, just as is the case in laryngoscopy or ophthalmoscopy. No man can satisfactorily examine the interior of the bladder without previous training and practice any more than he could the interior of the eye or larynx.

(2) The cystoscope is not, and probably never will be, a rival on equal terms to the ophthalmoscope or the laryngoscope, and that for the following reasons:—

(a) These instruments can be employed at any time for any case without inconvenience or danger to the patient. Cystoscopy, on the other hand, involves a certain, though small, degree of risk—namely, that attending the passage of any instrument into the bladder, to wit, “urinary” or “urethral” fever, so called. It further, not infrequently, causes so much discomfort as to involve the use of chloroform, and may render desirable, in elderly men at least, a day in bed subsequently to examination. (In practice the risk of urethral fever may be disregarded, if the instrument be gently passed, under antiseptic precautions, and, in any circumstances, it is no greater than in the passage of any other urethral or bladder instrument.)

(b) Further, the cystoscope is an infinitely more costly instrument, and, moreover, is useless without a supply of electricity.

(c) Further, practice in its use is much more difficult to obtain. Patients readily consent, as a rule, to have throat or eyes examined; but, unless a man is really suffering a good deal, he will not consent to have an instrument passed into his bladder.

(d) Lastly, the cystoscope is, as yet at least, optically and mechanically less perfectly adapted to the end in view in its construction than are the ophthalmoscope and laryngoscope, the difficulties in its construction being much greater.

(3) I would specially call the attention of members of Class II to the fact that cystoscopy is still in its infancy. The cystoscope has potentialities which are being every day developed. Our skill in its use, and aptitude in interpreting aright the significance of the appearances observed, are steadily increasing, while it can only be a question of time till many of the structural defects still existing disappear, just as many of those formerly present have already done.

A study of the records of cystoscopy over the past few years is calculated to assure anyone that, within the next few years, the proportion of unsuccessful to successful cystoscopies will greatly diminish.

(4) Members of Class III would do well to remember, despite the brilliant results frequently obtained, that, unless a man has had very considerable experience in cystoscopy, his failures to establish a diagnosis will be probably as numerous as his successes, and that, even in the hands of those who know most about the subject, failures are still of sufficient frequency to render it advisable that the possibility of their occurrence be fully recognised.

Similarly, as regards the difficulties of cystoscopy, those who have mastered the initial difficulties of focussing objects in the normal bladder, and purpose using the instrument in practice, would do well to bear in mind the following points:—

(1) It is often necessary in disease, for a variety of reasons, to make several examinations before a satisfactory view is obtained. During the six months from May to October last, inclusive, I examined cystoscopically in the Central Dispensary, in the Western Infirmary, and in private, twenty-eight cases of definite disease of bladder or kidney. In only sixteen of these was I able to satisfy myself as to the actual state of matters at a single examination.

(2) An examination, to be successful, seldom occupies less than twenty to thirty minutes, and may occupy an hour or more. Part of this time may be required for washing out the bladder. Part of it is occupied by the interruption of the illumination at intervals for a minute or two at a time to avoid too great heating.

(3) The bladder or urethra may be so irritable that chloroform is necessary. Cocaine in ten per cent solution should always be employed. But in a certain number of cases this is not sufficient, and even chloroform occasionally proves ineffectual. The cases which give most trouble in this respect are those of tubercle. In such cases the bladder is often so irritable as to refuse, even under chloroform, to tolerate enough fluid to render safe the introduction of a lighted cystoscope. I have more than once had to keep a patient in bed on milk diet for some time in order to allay irritation sufficiently to permit of examination. The last case of this kind which gave trouble was one in the Western Infirmary in August. In this case it was only after a week of bed, and milk diet, with repeated cautious washing out of the bladder, that I was able to get enough fluid retained, under chloroform, to allow

of examination. Formerly I always employed boracic acid solution for washing out and distending the bladder, following the practice of my former chief, Mr. Hurry Fenwick. Lately, however, I have been utilizing the anæsthetic properties of carbolic acid instead. In several very irritable bladders I have washed out with 1-80, and then distended with 1-200, and I think it has had a decidedly sedative effect on the mucous membrane. Rest in bed for a few days with light bland diet has certainly considerable effect in all cases of irritability of the bladder, irrespective of cause, and patients who are really suffering rarely object to this.

(4) The view of the bladder wall may be obstructed by the presence of various materials, which may render repeated attempts at examination necessary, or may absolutely preclude successful examination. The most common of these are:—

(a) Pus. Repeated washing out usually overcomes the difficulty from this, though it may be extremely baffling if adherent to the bladder wall. I have several times, in cases where pus was firmly adherent in quantity to the bladder wall, filled the bladder with a solution of soda, which was left for two hours, after which douching out was more successful in clearing the viscus.

(b) Blood. Fluid blood, unless hæmorrhage is very profuse, can usually be coped with by rapidly washing out and distending with clear fluid containing some local astringent, and then examining rapidly a definite area of the wall before enough hæmorrhage has occurred to obscure the view, repeating the manœuvre for another area, and so on. It may, however, be necessary to wait one's chance, even for days, till a temporary cessation or diminution of hæmorrhage occurs. I had lately to wait over ten days and, during that time, make four attempts at examination before I obtained a view. This was in a case of carcinoma sent me by Dr. Dunlop, of Dennistoun. Blood which has formed coagula in the bladder, especially if over an ulcer or growth where the rough surface encourages firm adhesion of the clot, is a much more serious obstacle to deal with. One of my earliest cystoscopic cases in Glasgow was that of a man sent me, nearly two years ago, by Dr. H. St. Clair Gray, where, on repeated examination, I could see nothing but blood clot. In this case the failure to make a diagnosis cystoscopically was specially unfortunate as, *post-mortem*, a very distinct carcinomatous growth was demonstrated, which, but for the adherent clot, must have been evident through the cystoscope during life, and the existence of which was not considered a probability till a very late

stage of the illness, the man's symptoms all pointing to a non-malignant trouble, his chief symptom, hæmaturia—*e.g.*, having had a duration of over nine years, an altogether exceptional duration for a hæmaturia from carcinoma.

(c) Mucus or muco-pus adherent to the bladder wall. This is not easily detached by washing, and may be present in such amount as to quite obscure the wall, as happened in the case of a gentleman whom I saw some months ago with Dr. Turner.

(5) If the bladder is not fully distended by fluid before examination, the walls are apt to hang in folds and conceal objects on their surface. In this way I for some little time missed a carcinomatous ulcer on the posterior wall in the case of an old lady, which I formerly brought before the Society.

(6) Enlargement of the prostate may greatly hamper, or quite prevent, examination. In the case of an old man, sent me in April last by Dr. Suttie, the prostate formed a tumour rising into the bladder. This tumour forced the point of the cystoscope so far up into the summit of the bladder as to quite prevent any examination of the base, the all-essential point in the case, as the symptoms seemed to point to a growth, probably malignant, in that region. In another case, at the Central Dispensary, in March last, where I had crushed a small stone and was suspicious that I had left a fragment, the prostate was seen on cystoscopy to form the elevated anterior margin of a post-prostatic pouch so deep that it was only by passing two fingers into the rectum and pushing up the base of the bladder that I succeeded at last in examining its cavity.

It would serve no useful purpose to further enlarge the list of difficulties to be encountered and fallacies to be guarded against. Of the other aspect of cystoscopy—namely, the brilliant and very gratifying results frequently obtained in the most obscure cases, I have, as already indicated, purposely said nothing. My object will have been attained if in what has been said I have succeeded in showing that, while the cystoscope, so far from being a "toy," is already an instrument of the greatest practical service in surgery, its use is, as yet, beset by not a few difficulties, so that surgeons approaching its use for the first time may not do so with any false expectations. Those who hope to use it as they use the ophthalmoscope or laryngoscope can only experience disappointment, while those who employ it on the lines I have attempted to indicate have, while experiencing disappointment occasionally, the satisfaction of getting to the bottom of many

a puzzling case and saving many a patient from the ordeal of exploratory cystotomy or nephrotomy.

In concluding, I should like to say one word in regard to the whole subject of "genito-urinary surgery," so-called, and if in saying it I should appear to lay myself open to the charge of undue egotism, I must beg members of the Society to believe that the foundation of such a charge is apparent only.

Last year I had the privilege of reading a paper and giving a demonstration before the Society bearing on recent advances in the surgery of the urinary organs.* One result of that paper was the establishment by the directors of the Glasgow Central Dispensary (late Anderson's College Dispensary) of a special department in that institution for diseases of the urinary organs, with the double purpose of the relief of poor patients and the providing of a field of practical instruction for students when a sufficiently large attendance of patients had been secured. A second result, possibly so far dependent on the first, has been, it would seem, the spread of an impression that my humble aim was the advocacy of the creation in Glasgow of a special branch of practice in genito-urinary cases similar to those for throat, ear, or eye. If what I said has been responsible for this, permit me now to correct it. Special training is necessary before a man can successfully employ the urethroscope or cystoscope, or successfully crush a stone; but this training must be acquired by general surgeons—not by men posing as pure specialists. In London and on the Continent the posts on the staffs of the various special hospitals for diseases of the urinary organs are, with very few exceptions, held by men who are also surgeons on the staffs of general hospitals, and in Glasgow, of the few men who are using the cystoscope, for instance, most, if not all, are, so far as I am aware, on the surgical staffs of our infirmaries. It is neither probable nor desirable that practice in diseases of the urinary organs should ever come to occupy a position so clearly demarcated from general surgery as that now universally accorded to practice in eye or throat troubles. Many factors clearly separate urinary work from the position of eye or throat work, and as clearly stamp it an integrant part of general surgery. The mention of one only of these, however, will probably be sufficient—that one is the magnitude of the operations involved. No man who has not the training and practice of a general surgeon can have any claim to open or excise a kidney, to excise a prostate, or perform lithotomy.

* See *Glasgow Medical Journal*, September, 1892.

THE TRUE POSITION OF OXYGEN AS A RESTORATIVE IN CARBONIC ACID POISONING.

(Continued from p. 357.)

By W. ERNEST THOMSON, M.A., M.D.

GENERAL ACCOUNT AND SURVEY OF THE EXPERIMENTS ON ANIMALS.

Experiments I, II, III, IV, V, and VI may be passed over as merely preliminary. They do not appear in the tables. Experiments VII, VIII, IX, X, XI, XII, 7A, 8A, and 9A may be taken up as a group.

In this group a rabbit is placed in the chamber, and a powerful current of carbonic acid is made to traverse the latter. In a few moments uneasiness, accompanied by expiratory efforts of an increasingly violent kind, becomes manifest; convulsions, generally very violent, occur, and the animal falls on its side. The convulsions cease, the respiration becomes of a gasping character, and at the end of a few minutes (1-4) reaches a point (arbitrarily chosen as the "final condition" in this group) which for want of a more convenient term I have designated the "failing point." It is that point at which, after a series of rapid gasping respirations, an interval or break occurs, during which a gasp appears to be missed, and after which the gasping proceeds as before, perhaps somewhat more slowly. When the animal has reached this "final condition," the carbonic acid is stopped, and the restoring gas, which in this group is oxygen or air? (see explanation in previous section) is allowed to pass through the chamber in a rapid stream.

Recovery is in all cases rapid, and denoted by the rabbit of its own accord raising the head in the attempt to rise.

If one glances now at Table I or Table II, it will be noticed that unfortunately there are considerable differences in the times of administration of carbonic acid (in this group), the cases where oxygen was used never showing such a long immersion as the others; consequently there is at first sight some advantage regarding the brevity of the "recovery time" in favour of oxygen in the case (Table II, Experiments XI, 8A, and VIII), where the difference is greatest. In the case where the difference is least (*ibid.*, X, 7A, and VII) the advantage is in favour of A and A?, and in the case where the difference is medium (*ibid.*, Experiments XII, 9A, and IX) the advantage appears for A? over O and A. In other words, in this table

(II) the result cannot be said to be much in favour of any particular restoring gas.

But now turn to Table III where we deal, as explained in a previous section, with averages, and compare recovery time with immersion time. The average of three oxygen cases, three air cases, and three air? cases is taken, both as regards time of administration of carbonic acid and time of recovery. Both of these averages are seen to be shorter in the case of oxygen than in the other two cases.

If we now in each case divide the average time of recovery by the average time of immersion, we get a number which expresses the relation of time of recovery to time of carbonic acid administration; and, of course, the larger this number (*i.e.*, the greater the quotient), the smaller is the advantage for the gas in question, the greater the recovery time compared with the immersion (in carbonic acid) time. Thus we find that (Table III, first three groups)—

$$\frac{x}{\text{CO}_2} = \frac{\text{average recovery time in oxygen}}{\text{average time of CO}_2 \text{ administration}} = \frac{O}{\text{CO}_2} = 1.397$$

$$\frac{x}{\text{CO}_2} = \frac{\text{average recovery time in A?}}{\text{average time of CO}_2 \text{ administration}} = \frac{A?}{\text{CO}_2} = 0.557$$

$$\frac{x}{\text{CO}_2} = \frac{\text{average recovery time in air}}{\text{average time of CO}_2 \text{ administration}} = \frac{A}{\text{CO}_2} = 0.738$$

Thus expressed, it is at once seen that oxygen is at a disadvantage.

This illustration it will not be necessary to explain again; the value of $\frac{x}{\text{CO}_2}$ will be simply stated.

The next group consists of Experiments XIV, XV, XVIII, and XIX. XVI and XVII need not be considered, since, being experiments with guinea-pigs, they are solitary, and have no others to compare with them.

The carbonic acid was passed through the chamber as before in a rapid stream, but instead of the "failing point" the final condition is here considered to be "respiration almost ceased;" in other words, gasping at long intervals. The gases to be compared are oxygen and air?. As before pointed out, whatever A? may have been, it could not well have been pure oxygen.

Consider Table II. Here we see that the recovery point in this group is "recovery of natural respiration." This term means that the animal has passed out of its former condition of gasping, and is breathing in the ordinary way without gasping.

It does not mean that the rate of respiration is absolutely normal, but that the respiration is of a natural character.

It is seen from this table that there was no great discrepancy in the times of carbonic acid administration such as occurred in the first group considered, and that recovery was more rapid under A? than under O when we compare experiments most nearly alike in time of carbonic acid administration—namely, XIX with XV, and XIV with XVIII. It must, however, be admitted that experiment XVIII is fallacious, in so far as the animal was assisted in its recovery.

On the whole, however, this group shows no advantage for oxygen over another gas, which cannot well have been oxygen also, and was probably air. Owing to the faultiness of experiment XVIII, this group does not appear in the table of averages (Table III).

We come next to a group in which oxy-nitrogen is compared with true air, namely—Experiments XX, XXI, XXII, 20A, 21A, and 22A.

Here the time of carbonic acid administration is not noted. The animal is kept in the chamber until it arrives at a stage (final condition) where, after gasping has continued for some time, an interval of several seconds occurs. This is called “complete cessation of respiration” for the purposes of the experiment, although, of course, respiration could not have entirely ceased.

Before passing to the consideration of this group in detail, it may be worth while to insert a note which occurs in my actual account of the experiments made at the time of performance.

The Phases of Rapid Asphyxia.—These three experiments, XX, XXI, and XXII, and also others performed previously, show that when an animal is subjected to an atmosphere containing a considerable proportion of carbonic acid, it passes through the following stages:—

I. Almost at once a stage of weakness, indicated by tottering. (This is also the period of expiratory effort.)

II. Following quickly on this, convulsions, passing momentarily into tetanus, generally of the flexors, sometimes of the extensors.

III. Paralysis and loss of superficial reflexes: the organic reflexes remaining, the breathing continues at first more or less naturally, then alternates with gasping respiratory efforts, and finally becomes purely gasping in character. This stage is very long, lasting (in the rabbit) it may be many minutes after the paralysis sets in.

At first sight this long period of gasping might seem to indicate that many miners must have perished from sheer stupor and muscular weakness preventing their escape. But it has to be borne in mind that in cases of fire-damp explosion there is not only great excess of carbonic acid, but also absence of oxygen, which must mean a much more rapid death than where the poisoning is brought about by excess of carbonic acid alone. It may be assumed, however, that in these experiments, as in most cases of asphyxia, the two causes, excess of carbonic acid and want of oxygen, are more or less combined.*

To return to the group under consideration. The restoring gas is admitted by the funnel (see Fig. 2), and a reference to Table II shows no advantage for oxy-nitrogen over air. This group is not represented in Table III, because the time of carbonic acid administration was not noted.

In the next group (XXV-XXX inclusive) the rabbits were placed in the chamber and the treatment with carbonic acid continued until the beginning of the paralytic stage. They were then removed, and the administration of pure carbonic acid continued by the funnel. They thus obtained almost no oxygen at all. This was continued beyond the actual cessation of respiration for from five seconds to twenty seconds. Then artificial respiration was commenced in XXV, XXVI, and XXVII with oxy-nitrogen, and in XXVIII, XXIX, and XXX with oxygen. In each case one rabbit out of the three recovered; in the other cases no amount of artificial respiration was of any avail. The artificial respiration was continued for some time. A reference to Tables I and II shows no appreciable advantage for pure oxygen over 50 per cent oxygen (oxy-nitrogen). These six experiments seem to show that there is a certain critical point in asphyxia. All on one side means possible restoration, all on the other means death, in spite of any amount of oxygen. This group is not represented in Table III.

So far the experiments have dealt with rapid asphyxia brought about by a large amount of carbonic acid accompanied by diminution of oxygen, owing to its displacement by the large volume of carbonic acid.

* In the end, poisoning by absence of oxygen is only poisoning by carbonic acid; so that whatever is proved regarding oxygen as a restorative in poisoning by carbonic acid, even when slow, is proved regarding choke damp. Choke damp is composed of carbonic acid, water (steam), and nitrogen. If oxygen is useless in slow carbonic poisoning, so much the more will it be useless when the asphyxia is extremely rapid.

The next group, XXXI, XXXII, 32A, XXXIII, 33A, and XXXIV, is one in which only a small amount of carbonic acid, sufficient to barely extinguish a flame at the bottom of the chamber, was employed. Asphyxia was slow; and, although the carbonic acid was from time to time increased in amount, these experiments express in a pretty typical manner the usual description of poisoning by carbonic acid rather than of the phenomena following the breathing of an atmosphere containing a deficient supply of oxygen. The long duration of respiration, the drowsiness and the absence of a marked convulsive stage all point to this.*

As before mentioned, the rabbit was placed in the chamber containing just sufficient carbonic acid to extinguish a flame in its lower part. When, after a period which varied from 33 min. 40 sec. to 50 min. 10 sec., it had passed through all the stages of slow asphyxia, and had arrived at a condition of extreme feebleness, the cornea quite glazed and sinking, the respirations of the very slightest amplitude, and of a twitching, spasmodic character, the restoring gas was admitted to the neighbourhood of the nostrils, at first in a slow stream, and afterwards more rapidly.

Three points in the progress to recovery were noted—namely, the time of recovery of natural respiration, the time when the animal winked without being touched, and the time when it raised the head of its own accord.

I do not think that the time of winking is at all a reliable indication, for, as is shown in the table of later experiments (*quod vide*), where the return of corneal sensibility was tested, the time of this return does not seem to bear any constant ratio to the time of return of certain other reflexes. For preference, therefore, the time when the head is first voluntarily raised is considered to be the "recovery point."

Note on the Phases of Slow Asphyxia.—These experiments where the asphyxia is slow were very fully and carefully noted, and only a short general account of them can be given here.

Briefly, the animal after a little interval shows some sign of difficulty in breathing. After this comes a stage of drowsiness, with pupil fairly contracted, head drooped, attitude motionless, saliva tending to flow freely, and sometimes relaxation of the vesical sphincter. At intervals it rouses itself, the pupils dilating with the motion, seeks about for air, and then settles down again in a drooping, drowsy

* In other words, they are more typical of (comparatively) slow than of violently rapid asphyxia.

posture. Gradually the fore-legs give way and spread out, the ears are set back, and the breathing becomes very laborious and hurried. The animal no longer tries to recover itself, but may be roused momentarily by making a noise, and then sinks down again. Then the fore-legs give way entirely, and it sinks prone, and gradually topples over; gasping begins to alternate with ordinary respiration, the pupils dilate widely, the superficial reflexes are all abolished, gasping becomes constant, and gradually gets slower and feebler; the cornea becomes glazed and sunk; occasionally a slight tendency to opisthotonos occurs, and death threatens to take place in the quietest and most insidious manner by the gradual dying away of the respiratory efforts, which end by being indicated merely by a spasmodic twitch of the head and nares. And yet when, even now at the eleventh hour, a slow stream of oxygen, air, or oxy-nitrogen is allowed to play about the face, recovery gradually takes place, gasping becomes deeper and deeper, passing gradually into deep inspirations. Then the gasping ceases, the respirations are quick and full, and the nares in rapid motion; the irritation of a dry conjunctiva and cornea causes winking, the blue appearance of the ears and nares is changed into a pinker hue, and the animal struggles to raise the head.

A Case of Complete Loss of Equilibrium.—In one case (XXXIII) there was complete loss of equilibrium. Whenever the rabbit tried to rise, it fell over on the other side, tried again, and fell over, and so on for many minutes. Even at the end of half-an-hour the equilibrium was not quite stable. Eventually complete recovery took place.

Whatever points of interest there may be in the sequence of events thus observed cannot be discussed further in the present paper.

Coming now to the comparison of oxygen, oxy-nitrogen, and air in this group, there is, in Table II, an advantage shown for oxygen and oxy-nitrogen over air.

If we turn to Table III, and look for the value of the fraction $\frac{x}{\text{CO}_2}$ we find that

$$\frac{\text{O}}{\text{CO}_2} = 0.169$$

$$\frac{\text{ON}}{\text{CO}_2} = 0.185$$

$$\frac{\text{A}}{\text{CO}_2} = 0.212$$

But the advantage thus shown for oxygen is exceedingly slight, and surely easily accounted for by errors of observation.

I think one is entitled to infer, then, that in this, as in previous groups, there is no real advantage for oxygen over air. (The advantage for oxygen is only .04; a much greater advantage than this would be necessary, even over a number of experiments, to prove any real advantage.)

The next group (Table I, Experiments XXXV to XLV, XLIX, L, 35A, 36A, 43A, 44A, and 45A) is a large one, and the most important of all.

Hitherto, it must be admitted, the recovery time has been a very badly defined point, but in this group a more definite and reliable method was first adopted. The experiments in this group deal with asphyxia brought about with considerable rapidity, the time of carbonic acid administration varying from 32 sec. to 11 min. 5 sec., and probably, even taking the latter figure, asphyxia was in great measure due to deprivation of oxygen, thus approaching the condition of affairs likely to be found in mines after an explosion of fire-damp.

The amount of carbonic acid was considered sufficient when a taper was extinguished as soon as it was introduced into the *upper part* of the chamber. But in XXXV and XXXVI no doubt the carbonic acid was in greater excess than was intended. The "final condition" of the animals was a point at which, as in the previous group (XXXI, &c.), the respiration was almost extinguished, and reduced to a kind of spasmodic jerk of the head and a twitching of the nares. The restoring gas was admitted quite slowly to the region about the head, and the cover of the chamber (Fig. 1, *g*) being removed, the hand of the experimenter was introduced, and the cornea repeatedly touched. The time of the first response, shown by winking, was then noted. Attention was next directed to the skin and muscles, which were repeatedly pinched and struck, and the time of the first response by drawing up the leg accurately noted; then the time of the first attempt to raise the head in answer to pinching and striking was observed. We thus have three criteria of recovery, called the "cornea reflex," the "leg reflex," and the "head reflex" for the sake of convenience.*

There are no points of any particular importance in the *individual experiments* of this group. It is rather remarkable, however, that one particular rabbit (W, Experiment

* In all the experiments the rate of admission of the restoring gas was gauged by the sound as it hissed out of the cylinder.

44A) showed here, as in Experiment 8A, a tendency towards convulsions *when recovering*—a rare occurrence in my experiments.

The gases compared are oxygen, oxy-nitrogen, and true air.

The "leg reflex" is here taken as the standard recovery point, and it will be seen at once that oxygen has in every instance an absolutely longer recovery time than air, and in nearly every case a longer time than oxy-nitrogen. When we come to compare similar times of carbonic acid administration (Table II) we find the same disadvantage for oxygen. But now turn to Table III. Here we notice as before the relation which time of recovery bears to time of carbonic acid administration with each gas, namely—

$$\frac{O}{CO_2} = 1.410$$

$$\frac{ON}{CO_2} = 3.245$$

$$\frac{A}{CO_2} = 0.910$$

showing a distinct relative advantage for air over both oxygen and oxy-nitrogen.*

So that both *absolutely* and *relatively* air has a distinct advantage; or, not to press the point too closely, oxygen has no advantage over air in this the most accurately and carefully performed group of all.

Note on Gas Analyses.—In Experiments XLIX, L, and LI, an analysis of the gas in the chamber near the animal's head was made in order to discover—

First, what percentage of carbonic acid was really in the chamber.

Second, whether there was a comparable amount of carbonic acid at similar points in the three experiments.

The result showed that the amounts of carbonic acid were very high, and also remarkably similar in the three experiments, and that the oxygen present was about half the atmospheric volume. The analyses prove, I think, that it is

* One gas may be said to have an *absolute advantage* over another gas when the actual time of recovery is less than that of the other; and to have a *relative advantage* when, no matter what may be the actual relationship of the recovery times to one another, the fraction $\frac{x}{CO_2}$ of the first gas has a smaller value than $\frac{x}{CO_2}$ of the other. The terms, however, are merely used for convenience.

possible to roughly estimate by the flame the amount of carbonic acid which is administered in each group.*

The analyses were very kindly made by Professor Mills, F.R.S., assisted by Mr. J. Cruickshank Smith, B.Sc., and Mr. Stanley Muir, B.Sc. The method of withdrawing the gas is shown in Fig. 3.

A two-way stop-cock (T.W.S.) was applied to the inlet tube of the chamber. To one branch was attached a gas-holding glass tube with three dilatations (*g*); to the other branch was fixed the tube from the CO₂ cylinder. The animal lying in the chamber R, with its nose at *r*, the required degree of asphyxia was obtained by admitting carbonic acid. At the moment of muscular collapse (the carbonic acid having been previously shut off, and by turning the stop-cock, the tube *g* placed in communication with R), the atmospheric air present

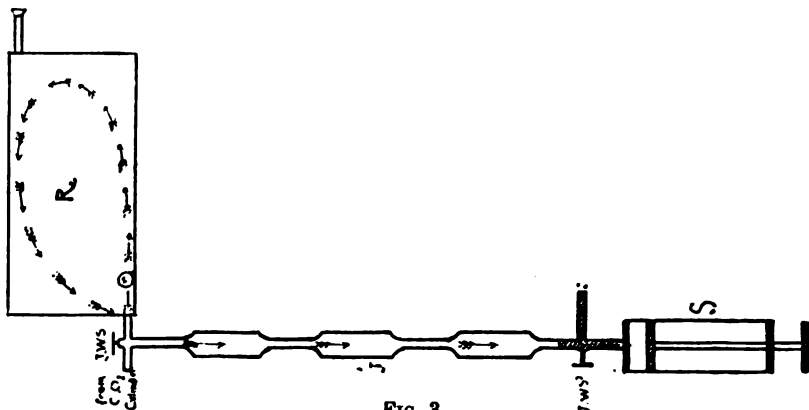


FIG. 3.

in the gas-tube (*g*) was sucked out by the aspirator (*S*), and discharged by the two-way stop-cock (T.W.S.²) into the room. The aspiration was then repeated three or four times to make sure of a fair sample of the mixed gases of the chamber; and the two ends of the tube (*g*) hermetically sealed. Another sample was taken in a similar way when the final condition was reached.

* Two samples of gas were withdrawn in each experiment. The following is the result of the analysis as regards O and CO₂ in the samples withdrawn when the animal had reached its "final condition," which in these experiments is recorded as "feeble spasmodic gasping":—

	CO ₂	O.
Experiment XLIX,	45·47	10·95
Experiment L,	52·85	8·99
Experiment LI,	52·90	9·64

CONCLUSIONS DEDUCIBLE FROM EXPERIMENTS ON ANIMALS.

What, then, are we to say is the result of this somewhat lengthy series of experiments on rabbits?

I began this research with great hopes that, in spite of the work of others, and notably of Paul Bert, some good effect in cases of asphyxia would be found to result from the use of oxygen. These hopes, as probably all who study the results will acknowledge, have not been realised. There is little doubt in my mind that there is absolutely no advantage to be gained by miners having cylinders of oxygen at various accessible places in the mine—that is to say, no advantage over cylinders filled with air (*vide* next section).

It will be well to anticipate at this point certain criticisms which may be foreseen. In the first place, the remark is sure to be made, "Your methods are inaccurate as regards the amount of carbonic acid employed." The reply to this must be that, since animals are not machines, they must not be treated as if they obeyed mechanical laws; for if, instead of allowing the carbonic acid to flow in unmeasured, a definite quantity had been used, there would still have been the idiosyncrasy of the particular rabbit to consider, and what is still more important, an immense possibility of error from other sources, such as the leakage of the respiration chamber.*

Another point which might be criticised is the uncertainty attaching, first, to the animal's condition at the moment when the restoring gas is admitted; and second, to its condition at the moment when it is for purposes of comparison deemed to be recovered. This is an unavoidable uncertainty. It is quite impossible to state, even supposing the most complicated apparatus were used, the moment at which any one animal is in precisely the same state in one experiment as another animal in another, or even the same animal in another experiment. And it is just this unavoidable source of error which would have vitiated results obtained from the most accurate apparatus for measuring the carbonic acid either at the commencement or during the course of the observation. But allowing quite frankly that there is a large element of uncertainty about each individual experiment, there can be little doubt that the large number performed

* Although it has been previously stated that the respiration chamber could be made air-tight, the frequent necessity of removing the cover for a moment to alter the animal's position or to ascertain the state of the reflexes would constitute a leakage which would completely vitiate the results.

invariably by the same observer, and the care which was taken to avoid a prejudiced opinion of an animal's "final condition" almost preclude the possibility of gainsaying the total result. Moreover, in Experiments XLIX, L, and LI there is a great correspondence in the results of the analyses, and probably, had an analysis been made in all, it would have been found that the amounts of carbonic acid aimed at as the standard for each group would not have shown very marked differences (except in a few instances) in the different experiments of the group.

Then regarding the "recovery point." Although considerable uncertainty attaches to it in the earlier experiments, in the later and more important ones the first return of reaction to stimulation must be admitted to be as good an indication of a standard point in the recovery as could be found under the circumstances. And I lay particular stress on these later ones, for they are certainly the most trustworthy of all.

The conclusions, then, at which I have arrived regarding oxygen as a restorative in cases of asphyxia in rabbits, are that, whether asphyxia be slow and chiefly by the accumulation of carbonic acid, or rapid and chiefly by deprivation of oxygen, whether the oxygen be admitted slowly or freely, and even if given pure and assisted by artificial respiration, it is not one whit more rapid in its restoring action than atmospheric air similarly applied—a conclusion which physiologists have already taught us to expect. For it is known that the hæmoglobin of the blood exists in two forms, reduced hæmoglobin and oxy-hæmoglobin, and that one gramme of reduced hæmoglobin absorbs 1.56 cc. of oxygen. Since hæmoglobin exists in the blood to the extent of about 14 per cent, it follows that about 21 cc. of oxygen will be retained by 100 cc. of blood.*

These experiments, then, prove that 20 per cent oxygen (*i.e.*, atmospheric air) is sufficient to satisfy the reduced hæmoglobin which exists in the venous blood of asphyxia nearly to the full amount above mentioned (14 per cent).

ON THE POSSIBLE VALUE OF PORTABLE COMPRESSED AIR IN MINES.

The conclusions regarding oxygen just set forth do not quite end the matter.

Having noticed how quickly a stream of any respirable gas—air, oxygen, or oxy-nitrogen—resuscitated an animal

* M'Kendrick, *British Medical Journal*, 18th August, 1888.

asphyxiated by even very large amounts of carbonic acid, I determined to ascertain how far the mere physical effect of the draught was capable of dispersing the carbonic acid and maintaining life. Here, again, oxygen was compared with air.

The experiments performed with this object (XLVI, XLVII, XVIII, LII) are given in detail in the appendix, and I need here, therefore, only refer to the results:—

I. It is possible to keep an animal for a long time in an atmosphere containing a very high percentage of carbonic acid, provided a gentle stream of a respirable gas be allowed to play on the nares.

II. Oxygen is certainly no better than air for this purpose. This is in striking contrast to its power of keeping a flame burning in a high percentage of carbonic acid (see experiment XLVIII).

There is in present use an apparatus which enables a man to pass through an area of choke-damp. It consists, I believe, of a head-piece, similar to that used by divers, and an arrangement for depriving the expired air of carbonic acid, and returning the nitrogen along with a proper proportion of oxygen derived from a cylinder or reservoir. Is it possible, in view of the result arrived at in these experiments, XLVI, XLVII, and LII, to simplify the apparatus? Whilst it has been ascertained that a man with this apparatus can pass through an area of choke-damp, and into an area free from it wherein men are imprisoned, although it is obviously impossible for him to bring these men back with him through the poisonous area, will it be possible for him to carry a cylinder of air and a small nose and mouth respirator sufficient for a single person, and then by repeating the journey over and over again, allow the imprisoned men one by one to escape?

These are questions better left to the practical mining engineer, and they are both worthy of his attention. One thing is certain; there would be no advantage in going to the expense of having oxygen stored under pressure when air might be stored in the same manner and give as good results.

Seeing that this investigation was primarily undertaken in the interests of the mining community, I would strongly urge that the experiment be made of keeping a few cylinders of air with nose and mouth-pieces ready for use in those parts of the workings where men might be most easily imprisoned. The expense of the compressed air would be much less than that of oxygen, and the effect would be equally good. It seems quite reasonable to suppose that when a suffocated

person has to be dragged through a long passage, itself more or less contaminated as regards its atmosphere, the chances of ultimate recovery will be greater if the effects of this poisonous atmosphere be neutralised at the commencement and during the progress of the work of rescue, than if no such attempt be made until fresh air be reached in the ordinary way.*

(To be continued.)

LUKE, THE CHRISTIAN PHYSICIAN OF ANTIOCH.

[Translated from Prof. A. Harnack's "*Medicinisches aus der ältesten Kirchengeschichte*," Leipzig, 1892.]

IN the Apostle Paul's Epistle to the Colossians (iv, 14), we read: "Luke, the beloved Physician, greets you." In the epistle to Philemon (verse 24), written from Rome at the same time, the Apostle calls him his "fellow-labourer"; and in the last writing of Paul's which we possess, he says: "Only Luke is with me" (2 Tim., iv, 11).

Luke, the first physician whom we know to have been a Christian, took a prominent part as Paul's "fellow-labourer" in the spread of the Gospel. Church tradition ascribes to him the Third Gospel and the Acts of the Apostles, and much may be alleged in favour of this report. Both these books, which form a considerable part of the New Testament, have undoubtedly been written by a highly cultured Greek, by one who worked with the greatest accuracy as regards the sources from which he derived his information, who thoroughly understood the rules of the science of history, and who wrote in an excellent style. There are also to be found in both works passages which would seem, both from the interest and the knowledge which they display as regards medicine, to point to a physician as their author;† indeed, it has even been asserted that the preface to the Third Gospel is formed after the pattern of the preface to the "*Materia Medica*" of

* Since this was written two separate authorities on mining matters have told me that they do not consider this idea to be worth much in practice.

† Eusebius says in his *Church History*, iii, 4: "Luke, a scientific physician, bequeathed to us two books in demonstration of the science of soul-healing which he had learned from the Apostles."

Dioscorides.* It is certain, at any rate, that in no other Gospel is the activity of Jesus as the Healer both of soul and body so earnestly brought into prominence, and so lovingly described as in the third Gospel.† The Acts of the Apostles also concludes with an address by Paul, in which, on the basis of an Old Testament quotation, God is spoken of as the Physician who has abandoned the Jews and exercised His healing power exclusively on the heathen.‡

According to a tradition reaching back to the second century, Luke took part in the composition of yet another of the New Testament books—viz., the Epistle to the Hebrews. In recent times Delitzsch has come forward to support this idea. He writes:§ “That Luke was by profession a physician is strikingly in keeping with the construction of the epistle; for this epistle contains, so to speak, an anatomical (iv, 12), a dietetic (v, 12-14), and a therapeutic passage (xii, 12).” A striking idea, quite like those of the late Leipzig scholar, but of no value whatever as a proof! That Luke was the author of the Epistle to the Hebrews is merely an unauthenticated tradition, having its origin in the difficulties of the subject and the speculations of the learned.

Reasons have also been brought forward, which are worthy of consideration, against the idea of his being the author of the Gospel and the Acts of the Apostles. The fact, however, of his being that companion of Paul who wrote the description of the voyage from Cæsarea to Puteoli and the shipwreck (Acts of the Apostles, xxvii, *et seq.*) is beyond dispute. The accuracy and trustworthiness of the description are marvellous. Those who have studied the naval affairs of the ancients con-

* Lagarde, *Psalterium iuxta Hebr. Hieron.*, p. 165; compare also *Mittheil.* III, S. 355. [The following is a translation of the first sentence referred to. Dioscorides is assigned to the first or second century A.D. “Following many others, including not merely ancient, but recent authors also, who have written concerning the preparation of medicines, and their powers, and their use, we also, O dearest Areus, will try to show to thee that this matter has been taken up by us after due consideration and with no small amount of study: because some of them have not thoroughly elucidated the subject, and others of them have treated it merely historically.”]

† It must also have been noticed that the third Evangelist has endeavoured to draw a distinct line between the process of exorcising and the curing of “natural” diseases, both as regards their description and the methods used in curing them; see Campbell, *Critical Studies in St. Luke's Gospel*, Edinburgh, 1891 (known to me only through J. Weiss, *Theol. Lit.-Ztg.*, 1892, No. 3.)

‡ Acts of the Apostles, xxviii, 26-28. The two following verses contain only an appended historical notice.

§ *Comment. 2 Hebräerbrief*, S. 705.

sider that in the whole range of antiquity we hardly possess another account so rich in respect of acuteness of observation and clearness of statement, regarding nautical matters, as this account by the Physician Luke.

If Luke be the author of the third Gospel, then we have among the four Evangelists, according to report, not only a "Theologian," John, who bears this title of honour, but also a "Physician;" Mark, as the interpreter of Peter, would be the "Philologist;" and the Publican Matthew would require to see if he could find a place among the "Lawyers." The four Evangelists have been compared to every imaginable thing in the world that is fourfold and forms a *Universitas*—to the four quarters of the globe, the four winds, the four cherubim, &c. I know not whether in these comparisons, which were at one time taken quite seriously, any one hit upon the four Faculties, but I should be astonished if such were not the case. We do not think much of these matters now, and least of all of the union of the four Faculties, which has become somewhat loosened, and is in general not so likely to occur to the mind readily nowadays.

It rests on good authority that Luke came from Antioch, and was a member of the earliest of the Gentile Christian Churches.* Anything further, however, that tradition has to tell of him does not appear till later on, and is not authentic; he is said to have laboured in Achaia and Bœotia, in Dalmatia, Gaul, Italy, Macedonia, in Alexandria also, and so on. Some give an account of a martyrdom which he suffered in Thebes in Bœotia; others say Petrea or Ephesus. Out of the multiplicity of legends† let us give prominence to the pleasing one, that, on the grave of the saint in Thebes, there rained down pastilles or biscuits endued with healing power, and in this way the forgotten grave was discovered—probably a Bœotian local report got up by a speculative priest, who brought as an offering some small cakes in order to procure for his people a sacred shrine, and gain reputation and money for his church.

Not until very late—viz., in the sixth century‡ appeared the information that Luke was not only a Physician, but also a Painter. But, as is so often the case, the later false legend nearly supplanted the ancient true tradition. The Painter

* Eusebius, iii, 4; *Quæst. ad Steph. Nova Patr. Bibl.*, iv, 1, p. 270; *Hieron. de vir. inl.*, 7. The information probably reaches back to Julius Africanus, and perhaps the other statement also, that he was better acquainted with the Greek learning than with the Hebrew.

† S. Lipsius, *Apokr. Apostelgesch.* ii, 2 S. 354 *et seq.*, who has collated and sifted these legends with marvellous diligence.

‡ Theodorus Lector (*Valesius, Mogunt.* p. 551).

Luke soon eclipsed the homely Physician. Nowadays Luke is recognised throughout the whole Eastern Church principally as a Painter. He became a Painter because people wished to have "genuine" pictures of the Virgin Mary, and Luke was the Evangelist who had given the most exact description of the Mother of God. The tradition that he had been a Physician was not, however, at that time, intentionally suppressed. True, the heretic Marcion, a celebrated man, though without followers, tried to do this as early as the second century. Marcion would recognise no physician among the apostolic heroes, because in his overflowing Christian enthusiasm, he held it as unchristian to busy oneself about the human body. Thus, in the Epistle to the Colossians, he struck out the words, "the beloved Physician" standing beside the name of Luke. But this Christianity, in opposition to Nature, which was a revisal even of the old records, was rejected by the Church at large; Luke continued to be to her "the beloved Physician," and as such the living token at the same time that Christianity and Medical Science can well be combined. Even in the history of the Church, however, there have been times when all Natural Science and Medicine were almost condemned as profane learning. At such times it was of no little value for her to remember that in the New Testament there appears a "beloved Physician," and that he is the historian of the Virgin Mary and of the Lord, of Peter and of Paul. Thus the Physician Luke has carried on, even after his death, a quiet but powerful mission. He has protected in the Church his Science of Healing, and triumphantly averted from the Catholic Church the final consequences of a Christianity opposed to Nature.

M.

CURRENT TOPICS.

GLASGOW EASTERN MEDICAL SOCIETY.—A feeling, which has been generally prevalent during the last few years amongst those practising in the east-end of the city, that it would be a desirable thing to cultivate mutual acquaintance by means of a society running on much the same lines as those of the Southern Medical Society, has at length been translated into action. A meeting, which was attended by a large and representative number of local practitioners, was held in Blackfriars

Hall, Dennistoun, on the 8th November, under the presidency of Dr. George R. Mather, and on the motion of Dr. Patrick, seconded by Dr. Mathie, jun., was constituted into the Glasgow Eastern Medical Society *nemine contradicente*. Dr. Couper proposed, and Dr. Craig seconded, a motion for calling the society the Glasgow Hunterian Medical Society, but an amendment, proposed by Dr. James Dunlop, and seconded by Dr. J. W. Anderson, in favour of the purely territorial designation, was adopted by a large majority. Thereafter the meeting appointed office-bearers, and a committee to work along with them in preparing a constitution, and to make the initial arrangements for meetings and other necessary details. It is understood that for the present, at any rate, meetings shall be held not oftener than once a month. The success of the preliminary meeting augurs well for the future prosperity of our youngest Society. The following is a list of the office-bearers:—

<i>President,</i>	GEO. R. MATHER, M.D.
<i>Vice-President,</i>	WILLIAM PATRICK, M.D.
<i>Treasurer,</i>	THOMAS M'MURRAY, M.B.
<i>Secretary,</i>	JAMES CRAIG, L.R.C.P. E.
<i>Reporting Secretary,</i>	DAVID COUPER, M.D.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—The third ordinary meeting of the Society will be held in the Faculty Hall, 242 St. Vincent Street, on Monday, the 11th inst., at 8 o'clock. *Dr. Donald Macphail* will show a boy with double thumbs on each hand; *Dr. T. K. Monro*, a specimen of carcinoma of the stomach in which, during life, there was an absence of clinical symptoms; *Dr. Grant Andrew*, a specimen of ruptured stomach; *Dr. Freeland Fergus* will show some patients upon whom the operation of extraction of the lens has been performed for high degrees of myopia; &c.

REVIEWS.

Essays on Rural Hygiene. By GEORGE VIVIAN POORE, M.D., F.R.C.P. London: Longmans, Green & Co. 1893.

THE title of this brilliant book might well have been "The Sanitarian as Naturalist," which would have given a clue to the contents, instead of requiring the contents to explain it as the chosen title does.

The author would fain see our sanitary arrangements simplified and improved. He condemns most modern sanitary arrangements as being bad from a scientific point of view, because they are founded on erroneous principles, often ignoring natural laws if not actually contravening them; bad from a political point of view, because they often sacrifice the true interests of a majority to the selfish interests of a few; bad from a moral point of view, because they ignore any idea of individual responsibility, and "substitute rates for morals;" bad from an economic point of view, because they encourage the waste, or even involve the destruction of valuable material; and bad from a hygienic point of view, because they often make things worse instead of better, by converting obvious danger into hidden risk, and even give rise to dangers which did not previously exist. He would cure all this by following the laws of Nature, "whose silent forces are truly beneficent; they merely ask for fair play, they work for us without wage; and one great principle of success in all work in this world, be it legislative, be it sanitary, or be it of any other kind, is to go with them, not to fight against them, to learn if we can what is Nature's inexorable law, and lay to our hearts the fact that Nature brooks neither stubbornness nor disobedience" (p. 307). Coming to practical application of this wide principle, he says—"Health depends upon our obeying the beneficent laws of nature; and the rule of nature which most affects our health is this, *that all refuse matter shall be restored without delay to our mother earth, who will receive it gratefully, and give back a dividend*" (p. 120). Further—"Sanitation is a purely agricultural and biological question. It is not an engineering question, and it is not a chemical question, and the more of engineering and chemistry we apply to sanitation, the more difficult is the purifying agriculture. This, at least, has been the practical result in this country" (p. 97).

In the various chapters, which, though nearly all composed and used at different times as lectures, &c., have a distinct continuity in subject and method, he deals with all departments of sanitary affairs, with "natural law" as his guide, and the interpretation and application thereof as his aim. This method, being honestly followed out, makes his book a very instructive one, and his style of exposition, always clear, and often striking and epigrammatic, makes it an interesting and enjoyable one. Very few works on hygiene hit so happily the mean between raw, dry scientific accuracy and the loose, but

cunningly devised general statements which are supposed to catch more readily the popular ear.

The root of all evil in hygienic matters, according to Dr. Poore, is that people will crowd together into towns, and that engineers (falsely called *sanitary*) have made it possible for them to do so by the invention of high-pressure water supply, and the w.c. and soil-pipe—"the Sanitary Satan, which has brought 'death into the world and all our woe.'"

"The title of '*Rural Hygiene*' has been chosen because it is in the country alone that hygiene can be based upon *principles* rather than *expediency*" (p. 3). "The hygienic measures of cities have, for the most part, been hastily adopted in order to escape the dangers which are inseparable from an undue concentration of population. They may be compared to the herculean method which was practised upon the stables of King Augeas, and although we may admire the prowess of Hercules, we can feel nothing but contempt for Augeas, who would have been happier and richer had he kept his oxen in a rational way" (p. 2). We are not sure that Dr. Poore is not sometimes a little unfair to the present sanitary authorities, at least of the big towns. The big towns are there, and have to be made the best of, and in many instances their governors have made, and are increasingly making, most praiseworthy and remarkably successful efforts to remove evils for the creation of which they are in no wise responsible. But we are quite sure that if he would make even a cursory inspection of our villages and small towns, say in Lanarkshire, though the position there is not unique, where worse evils exist with less excuse, and almost no effort is made to remove them, he would condemn the "rural" authorities as heartily as he does some of the civic. There are some big towns which are exposed to much greater risks from the sanitary sins of their smaller neighbours than from evils existing within their own boundaries. However, the big town, with its burden of sanitary sins, its method of purchasing indulgencies for those sins by the imposition of rates, and its objectionable habit of transferring the consequences of those sins to its innocent neighbours is Dr. Poore's sanitary *bête noir*, and he states his case against it very clearly and very fairly, with some very interesting and concise tables of health in the first two chapters of his book. What to do with them is a different question, which Dr. Poore may be accused of treating as theological difficulties sometimes are; having looked it fairly in the face, he passes on to his next division. His present purpose, however, is attained, when he says, "If the big towns merely serve

as a warning to the country, and a standing example of 'How not to do it,' they will serve a very useful purpose. Although *remedy* is hardly to be thought for in large places which have got into a sanitary *impasse*, *prevention* is easy in places which still retain a fairly rural character" (p. 280). Prevention should consist in the prevention of close packing in cities, and the preservation or restoration of the natural relationship between the "hygienic unit"—i. e., the individual and the soil which nourishes him, and which he should nourish. "The prime hygienic unit is necessarily the individual man, and the problem which sanitarians have to solve is how to provide this individual with pure air, pure water, food and raiment. The individual requires a definite average amount of pure air, a definite average amount of pure water, and a definite average area of the earth's surface for producing his food, clothing, and other necessities" (p. 176). The necessary area Dr. Poore calls "the earth unit," the size of which, he admits, it is impossible to fix with mathematical accuracy owing to various and varying conditions, but his discussion of the subject is thorough and fair. He concludes thus—"In this country about two-thirds of an acre per individual might be sufficient. If the individual live on his land he will certainly get enough fresh air, and more than enough wholesome water from a well sunk in it. All refuse of every kind would be returned to the land in order to maintain and increase its fertility, and finally he might be buried in it. The life of this imaginary person might not be luxurious, but his hygiene would be complete, the privacy of his home would not be invaded by a 'Board,' and there would be no sanitary rate nor burial rate" (p. 191), and he might have added, no water rate, and no plumbers' bills.

We have given above the gist of the first two chapters. "In the third chapter the shortcomings of modern sanitary methods" are "dealt with, and it" is "shown that the mixing of putrescible matter with water is a fundamental scientific error which leads to the dissemination of water-borne diseases, the pollution of rivers, and the poisoning of wells. Whether such methods be regarded by the modern light of bacteriology, or by the evils and expenses of which they are notoriously the cause, they must be condemned as unscientific, thriftless, and immoral. They are unscientific because they encourage putrefaction and hinder nitrification, which should be our aim in dealing with organic refuse; they are thriftless because they merely waste or practically destroy that which, rightly used, should be a source of profit and productiveness; and

they are immoral because, by merely 'passing on' our refuse to be a nuisance elsewhere than on our own premises, we show a forgetfulness of our duty towards our neighbour, and we do unto others that which we are unwilling that others should do unto us" (pp. 5, 6). "This question is a national question of the first importance. A nation that fouls its streams and starves its soil is in danger of poisoning and inanition. A nation which imports a great part of its food, and a great part of its manure, and systematically, and by Act of Parliament, throws all its organic refuse into the sea, is undoubtedly living on its capital" (p. 110). This chapter contains much valuable information on the subject of manures, natural and artificial.

The fourth chapter deals with the "living earth" which converts organic matter into food for plants by the process of nitrification, and so will scavenge for us, feed us, and keep our water supply pure. The humus or mould of the upper stratum, which is really mainly composed of animal excrement, teems with microscopic vegetable forms, which are very active in transforming all organic substances added to the soil. It is only in the upper layers that these are abundant; they are practically absent from the subsoil unless artificially introduced by too deep tillage, or sewers or cesspools have taken them down. This "living earth," then, and not the inert mineral subsoil, is Nature's provision for the removal and destruction of animal refuse. "One cannot but feel that in our sanitary arrangements we have not sufficiently distinguished between the living mould of the surface and the dead earth of the subsoil. The living mould is our only efficient scavenger, which thrives and grows fat upon every kind of organic refuse; our only efficient filter—a filter which swells, and offers an impassable barrier to infective particles—a filter which affords a sure protection to our surface wells. When we perforate the living humus with a pipe, and take our dirty water to the subsoil, we, as it were, prick a hole in our filter, and every chemist knows what that means" (p. 96). No doubt, pathogenic organisms may be found in soil, but in cultivated soil they have a poor chance of survival. The conditions are not favourable to them, but are to the saprophytes, which soon overcome them. "In order to keep the soil healthy, to keep up its appetite for dirt and its power of digestion, the only thing necessary is tillage. Well cultivated soil, which is compelled to produce good crops, has never yet been convicted of causing any danger to health." (p. 96).

It is easy to understand how Dr. Poore objects to chemical

disinfection of excreta, which poisons the "living earth," and destroys its beneficent powers. In this connection, he remarks that the "Chinese are the most thrifty nation in the world. . . . The Chinese principle of returning all organic refuse to the soil is, there can be no doubt, absolutely sound. The Chinese details may be filthy and susceptible of improvement. In this country the details of our domestic sanitation are refined, elegant, and ingenious. It is the principle subverted by these details which is absolutely rotten" (p. 108). A practical demonstration of the principle of purification by "living earth" is given in this chapter, in the details and results of filtering urine through soil of different qualities.

In the fifth chapter on "the House," the author deals comprehensively and clearly with practical details of construction, pointing out the weak points in sanitary arrangements, and indicating how the consequent risks to health might be avoided.

The subject of "air" is discussed in the sixth chapter. There is nothing striking in his discussion of this subject, but the facts are well arranged and clearly stated. He insists upon the value of growing vegetation both as a purifying agent, and as a biological test of purity. He points out a fallacy in the outcry for wide interspaces between buildings, or sections of buildings, and insists that, if the air is pure and comes from outside, 50 feet are as good as 1,000. Incidentally, he gives a very full account of the investigation into the spread of small-pox, presumably through the air, from Fulham Small-pox Hospital. With the tact which is so necessary to the successful medical officer of health, he hints that if preachers would look after the ventilation of their churches, there might be less said about soporific sermons; in the same way as, elsewhere, he suggests that the temperance party might do good work by seeing that that beverage to which they would confine all mankind could be obtained everywhere fit to drink.

"The point which receives most attention when discussing the question of 'water' in the seventh chapter is the great difficulty of purifying water when once it has been fouled"—that is to say, when it is in large quantity. He would insist that excrement should never be allowed to come in contact with water, and shows how pollution of wells, &c., is always an underground process.

The next four chapters are devoted to practical details, the outcome of his own experience in three different places—London, a country village, and a growing suburb. In each of these places he applied his principles in practice, and the

graphic account of his difficulties and results is most interesting and valuable. His success in the country village was brilliant, because there he was owner of the house and surroundings, and the conditions, apparently very unfavourable at first, were, in the end, found to be favourable. There he abolished drains, substituting open gutters for them when really needed, and by this and the other means used, converted a dangerous and offensive garden well into a perfectly useful and safe one. He introduced earth closets, and established a system of daily removal of all refuse. Nothing is overlooked in this section, for he shows what may be safely and profitably done with excrement, washing-house, kitchen, and bedroom slops, ashes, garden rubbish, and even broken glass and old meat tins. The organic refuse was applied immediately to the soil, with the result of increasing the fertility of the garden amazingly. In this connection, he at another place (p. 317) draws attention to the wonderful fertility of London suburban market gardens, and the perfect cleanness of London stables as reciprocal cause and effect.

For the water-closet he cannot find parliamentary language condemnatory enough, and he gives his reasons. "Typhoid was not recognised in this country until the water-closet became common. We, doubtless, manufactured typhoid in a retail fashion in old days, but with the invention of the water-closet we unconsciously embarked in a wholesale business" (p. 99). Quoting from a friend—"In the midst of all the beneficial inventions . . . there is one which is wholly *evil*—I mean the water-closet. It bears a remarkable likeness to the eating of the forbidden fruit by our first parents. It was, outwardly, exceedingly fair to look upon, and pleasing to the eye; but inwardly it has spread death around, and has become a veritable tree of the knowledge of good and evil! For the great spread of diseases which it fosters has given rise to the investigation into the *causes* of these diseases, and into their means of spreading. It has led to the discovery of the different micro-organisms and to the use of antiseptics" (p. 217). This, however, is not wholly true, for that line of research started from a different direction altogether. This friend quotes a case where, up to a certain time, a village of two thousand inhabitants thrived well with privies, wells, and open drains. In an evil day a new vicar came, and he had to get a water-closet. One or two other householders weakly followed his example, and they soon made the town-ditch stink. The ditch had then to be covered in, at a cost of £1200. Then typhoid fever broke out, the vicar lost three

of his own children and nearly died himself, and many of the villagers suffered, and not a few died. The London Board sent down an inspector, all the wells were condemned, more sewers were built, and an expensive water supply had to be brought from a distance. The substitute for the water-closet is, as might be guessed from what has gone before, the earth-closet. To this the author has given much attention, and what he says about it will be a revelation to many who only know that earth-closets have been often recommended, occasionally tried, and usually abandoned. To quote the full description of what the earth-closet should be would take too much space, but we may state, briefly, that the secret of success is the use of dry (not artificially dried) "living earth"—that is, mould from the surface of cultivated land. This is Nature's disinfectant, and no other should be used. One great advantage of the earth-closet is the great value of the used earth as a fertiliser, and that value is destroyed by the use of chemical disinfectants, because they render the earth not only inert as a fertiliser, but often actually poisonous to plants. Dr. Poore shows how the earth may be stored and *used over and over again* without becoming offensive or dangerous. "The power of the earth to humify excreta is not diminished, but *is increased* by repeated use, 'as if increase of appetite did grow by what it fed on.' The importance of this fact cannot be overestimated, because with care an earth-closet can be satisfactorily managed wherever a few cubic yards of earth and a dry shed to keep it in are obtainable. If the earth which has been used be stored in an open shed, freely exposed to the air and turned over occasionally, it will be ripe again and again for use in a time varying, in this climate, from three weeks to three months, as the case may be" (p. 200). After "a fortnight all sign of former use had disappeared, *paper and all*, and it was then fit for to be used again; also this might be repeated six times or more" (p. 216). This seems to be Moule's system, which has been found in many places in India to be "a boon of great value, and medical officers have stated that nothing has been done in India of late years which has contributed so much to the health and comfort of the men." So says Parkes (*Hygiene*, 1887, p. 124), and we are surprised that Dr. Poore does not quote his approval of the system, or even refer to him or the Rev. M. Moule, to whom Parkes refers the invention.

"To go back to the lesson which is taught by this garden at Andover—the excrement of over one hundred people is

buried daily in little more than an acre of ground, with horticultural results distinctly above the average. The slop water runs in *open* gutters to an *open* stream. There is not a single underground sewer pipe, drainage pipe, or cesspool upon the premises. A shallow well sunk in the centre of the garden yields water which is organically very pure, and which, personally, I should not fear to use for dietetic purposes" (p. 251).

Probably the first question that most readers would ask would be—Would Dr. Poore rely upon this "living earth" to deal with discharges from typhoid or cholera cases? He says that he would unhesitatingly, but that if any doubts exist, the matter is easily settled by boiling. Heat is the best disinfectant, and if these discharges could be boiled, even for a short time, all this danger would be annulled.

In the penultimate chapter "burial" is dealt with, "as being part of the great question of the right bestowal of effete organic matter," and the power of the earth to do it best is insisted upon. He would have bodies buried in perishable coffins in shallow graves, would forbid heavy tombstones, and plant the ground with trees. Cremation he will have none of. It is unnecessary and unnatural, is a dissipation of energy and a waste of money. It takes seven shillings worth of fuel to destroy a body, whereas a man may be buried in twopence worth of ground to the profit of his survivors. "To sum up, it appears that, as compared with cremation, inhumation is cheaper, simpler, and quicker. It is *productive* and not *destructive*, it is indirectly a cause of freshening the air instead of fouling it, and provides a lovely spot for the enjoyment of the living" (p. 297).

The last chapter contains an interesting account of how Bremon tier reclaimed the "Landes," another demonstration of the principles that "Nature" is the true guide, that agriculture is the key to sanitation, and that sanitation on these principles is one of the most profitable of investments, even from a financial point of view.

From such a scrappy review as this, it may be that some may look upon this book as the work of a *doctrinaire*, a "faddist." But it is far from being that. It is an honest attempt, and a very successful one, to deal with a very complicated subject in a really scientific spirit, worthy of a "servant and interpreter of Nature." None can read it without profit, and we are convinced that if the principles it inculcates were more generally adopted much good would be done.

A Manual of Medical Treatment, or Clinical Therapeutics.
By J. BURNEY YEO, M.D., F.R.C.P., Professor of Clinical Therapeutics in King's College, London, and Physician to King's College Hospital, with Illustrations. In Two Volumes. London, Paris, and Melbourne: Cassell & Co., Limited. 1893.

It has long been a complaint on the part of both practitioners and students that our great text-books of medicine practically deal only with the diagnosis of disease, the space devoted to treatment being so small as not to allow of any discussion in detail. The work before us is the converse or the complement of those books we refer to. Here we have a brief summary of the diagnosis of disease, and a full discussion of treatment; and we may at once say that Dr. Burney Yeo's book will prove of service to a large number in the profession.

The work has been well done, but it would be none the worse of a little compression, as the style is somewhat redundant. It also seems well up to date, though we notice a few omissions—*e. g.*, treatment of pernicious anæmia by transfusion, and of malaria by methylene blue. Dr. Yeo does not limit himself to the practice he himself adopts, but gives an account of the various leading modes of treatment, and he seems to put opposing views very fairly. Scattered through the volumes are numerous prescriptions, which will, no doubt, be of service to beginners in the art of prescribing. The illustrations, to which attention is drawn in the title-page, are not numerous, and we do not think that their omission would have detracted from the value of the book.

La Pratique des Maladies des Enfants dans les Hopitaux de Paris. By PAUL LEFERT. Paris, 1893.

THIS little work is of the same class as one on gynæcology and obstetrics recently reviewed in these pages. The author gives the practice of some eighty or more men in the wards of the Paris hospitals. The book has good indices for easy reference, and the arrangement of the text enables one to see at a glance the treatment of the same conditions by several men. For example, we find that in whooping cough Labric swabs the throat and base of the tongue three or four times a day with a five per cent solution of hydrochlorate of cocaine, by which method he claims to reduce the number of the attacks and to get rid of the vomiting of food. The only contra-

indication is the presence of secretion accumulating in too large quantities on the diminution of the paroxysms. For the same disease Moizard gives nasal insufflations of quinine, benzoin and bismuth, as also D'Heilly. Marfan gives antipyrin internally, evaporates a balsamic mixture in the room, and smears the nostrils with vaseline containing 15 per cent menthol and 20 per cent boric acid. The majority of the physicians quoted trust chiefly in hygienic measures, with simple sedatives to palliate the paroxysms. Hayem and Ollivier recommend carbolic acid as a blistering agent for children in preference to cantharides. They use ten per cent solution in alcohol.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1893-94.

MEETING II.—3RD NOVEMBER, 1893.

SURGICAL SECTION.

The President, DR. HECTOR C. CAMERON, in the Chair.

I.—PATIENT WHO HAD BEEN OPERATED UPON FOR TORN SEMILUNAR CARTILAGE.

BY DR. HECTOR C. CAMERON.

Before showing this patient, Dr. Cameron said that operation for torn semilunar cartilage had not yet become common. This was the second case in which he had operated, the other occasion having been two or three years ago. In that former case it had been the internal semilunar cartilage which had been affected, and the internal was the more frequent of the two to be injured. The method he had adopted at that time was to open the joint, and, with fine catgut sutures, to stitch the separated portion to the strip which he had found still attached to the tibia. After the operation there had been a good deal of pain and some slight arthritis—non-septic—and movements of the joint were thereafter limited, so that chloroform had to be given once or twice to loosen the adhesions which had evidently formed. Ultimately, however, recovery had been perfect.

It had since been recommended to clip away the torn portion of cartilage, and Dr. Cameron had decided to adopt that method when the present patient came under observation. The details of his case may be stated as follows:—

W. D., æt. 22 years, farm labourer, was admitted to the Western Infirmary on 3rd June, 1893, suffering from pain and a feeling of something loose in the outer part of the right knee-joint. He stated that, about a year previously, he had just gone into the water for a swim, and was swimming in quite an ordinary fashion, when he suddenly felt as if he had taken cramp in his right leg, and that he was unable to straighten it. He had limped ashore and gone home, his leg being rather painful, and fixed in a slightly flexed position. The knee had become considerably swollen, but after about a month the swelling had disappeared, and he had been able to straighten the limb. Since that time he had frequently suffered from the knee, especially when walking over rough ground, as in ploughing. At such times there had been a general sense of insecurity about the joint, with sudden attacks of pain.

The following is an extract from the ward journal:—

On admission the patient was found to be able to flex and extend the limb freely. There was no swelling of the joint, but when he moved the leg into a certain position—usually abduction and flexion—one could feel a firm, loose body at the outer aspect of the knee-joint, and occasionally this gave a click. The patient had little or no pain, and in other respects he was in perfect health.

16th June.—Dr. Cameron to-day opened the right knee-joint freely on its outer side, and found the external semilunar cartilage torn. He cut away as much of the cartilage as he could conveniently reach, and closed up the wound.

23rd June.—The wound has healed by first intention, and there has been no appreciable synovitis. The temperatures are normal, and patient feels well.

24th July.—Patient has for some time been allowed to be out of bed, and has been using crutches. He can now walk very well without support, and can move his knee freely, except that he cannot wholly extend it yet. He went home on this date (24th July).

After leaving hospital, the patient had continued to have good use of the limb, and had been able to walk twenty miles, and even to plough, without limping or other inconvenience. Once or twice recently there had been a little click on extreme flexion—as when getting over a fence—and he had found difficulty in fully extending the limb when going up a steep hill.

Dr. Cameron thought that if he had made any mistake in this case, it had been in not taking more away, as a man with no semilunar cartilage at all seemed to get on quite satisfactorily. If he had to operate in a third case, he would proceed by removing, and not by stitching, as the latter was a very tedious method and very difficult, because of the want of room for manipulating the needle.

Mr. Clark congratulated Dr. Cameron upon the satisfactory result which he had obtained. In such cases it was often very difficult to know what treatment to adopt. In illustration of this difficulty, he might refer to the case of a patient of his who had met with an accident in London, and after being under observation for some time in St. Bartholomew's Hospital, had come to Glasgow with the advice to have some operation performed. Mr. Clark had thought that there was some internal derangement of the knee-joint, but resolved to try the effect of support from a suitable artificial knee-cap. The result had been so satisfactory that for the last two years the patient had been able to dispense with the support, and suffered no inconvenience from the joint. Thus operation was not necessary in every case. Mr. Clark had operated (by stitching) in two cases, and had been disappointed (1) because of the tediousness of recovery, and (2) because of the resulting stiffness of the joint, which had been very troublesome for a time, though it had ultimately passed off after suitable manipulations. These features seemed to be got over by this later operation. If one sutured together the portions of cartilage, or sutured cartilage to periosteum, as was sometimes done, an artificial condition was necessarily produced; there were the sutures there to be absorbed, and there was thus a possible source of irritation, and some time must elapse before the joint could possibly be in a satisfactory state. By the method of removal one escaped this difficulty.

From the anatomical point of view, the wonder was that the patient did not suffer from the loss of the semilunar cartilage. It would almost appear as if that structure were, after all, not of much account. It must be noted, however, that he did not even now have a perfect joint. After suturing one did not obtain a restoration of the normal condition, but there was improvement on the condition left by injury; that improvement would seem to be still more distinct when the torn cartilage was actually removed.

Dr. Faulds asked as to any inconvenience arising from the sound semilunar cartilage being left.

Dr. Cameron, in reply, said that, as a matter of experience,

the joint was now practically as good as before injury. There was another point which had rather surprised him—namely, the slight nature of the cause of tearing in the present case (W. D., *cf. supra*), and in some others. He quite agreed with Mr. Clark as to not operating in every case.

Dr. Renton had seen several cases in which removal of the semilunar cartilage had been successfully performed. A good joint had been the result, and he thought that the balance of evidence was for removing instead of stitching the cartilage. A similar opinion had recently been expressed to him by Mr. Annandale.

II.—PAPER ON THE PRESENT POSITION OF THE CYSTOSCOPE IN SURGICAL PRACTICE.

BY DR. JAMES H. NICOLL.

Dr. Nicoll's paper appears as an original article at p. 418.

Dr. Renton, in thanking *Dr. Nicoll* for his paper, spoke of the cystoscope as being yet in its infancy, and as having many disadvantages as well as advantages; no doubt the former would gradually be done away with, and the latter increase, just as had happened in the case of the ophthalmoscope. The cost of the instrument was one of the great objections to it; so also was the necessity for the use of electricity, though probably electricity would soon be much more easily available than at present. It was important to have some definite indication as to the cases in which cystoscopy was necessary. He himself would only advise it in cases of real doubt, and in cases where (apart from cystoscopy altogether) the patient was being put under chloroform for operative purposes; he could understand that, with encysted calculus, for example, the cystoscope might give hints as to the difficulties to be expected in operating. He had himself been able to demonstrate with the cystoscope, in cases of catarrh of the bladder, the condition of the mucous membrane before and after treatment by injections of glycerine of carbolic acid.

Dr. Faulds said that he found a small dynamo useful for generating electricity for the cystoscope. He hoped soon to be able to show the Society a cystoscope adapted to the female bladder.

Dr. Nicoll, in reply, referred to what had been said by *Dr. Renton* as to cystoscopy before operation. Before lithotomy there was nothing to be gained by using the cystoscope; but before crushing a stone, it was of great advantage to see its shape, as that showed how best to grasp it.

III.—DEMONSTRATION OF SEVERAL IMPROVEMENTS IN URETHRAL AND BLADDER INSTRUMENTS.

BY DR. JAMES H. NICOLL.

Cystoscope.—One of the most recent, Fenwick's modification of the Nitze-Leiter instrument, to which have been added telescope tubes of much higher magnifying power than those formerly in use, thus securing more detailed examination of particular areas of the bladder. It is convenient to first examine the bladder with a tube of low power which gives, like a low power lens in a microscope, a larger field than one of higher power. Should anything abnormal be seen, this can be more minutely examined by substituting for the low power tube one of higher power, without withdrawing the cystoscope.

Apart from this, recent improvements have been taking the form of shortening and widening the instrument, so as to secure a larger field; of lessening the resistance, so as to obtain better illumination with batteries of moderate power; and of securing better insulation of the wires, in order to avoid heating and the consequent more or less frequent necessary interruption of illumination. This instrument represents the most advanced stages yet reached on these lines.

Urethroscope.—Last year I showed the Society Von Antal's modification of Leiter's urethroscope, in which, by an application to the latter instrument of the principle of Siegle's pneumatic ear speculum, he had produced an instrument infinitely superior to Leiter's for diagnostic purposes. It was, however, useless for topical treatment of the urethra, so that when a granular patch, or an ulcer, or other lesion had been discovered, recourse had to be had to the older instrument, in order to cauterize, or scrape, or otherwise treat the diseased part. Mr. Fenwick has remedied this defect by the simple device of having the occluding lens, which retains the air in the urethra, fitted into a metal frame with a bayonet catch. The instrument is now employed in this way:—By introducing the tube and inflating the urethra, the whole canal down to the membranous portion can be leisurely examined. If a local lesion is discovered, the tube is passed on till its open distal end is abreast of the diseased spot. The occluding lens is then removed, and, the air escaping, the granular patch or ulcer falls over the open end of the tube, where it is readily reached by curette, or cautery, or solution brush.

Lithotrite.—This is one by Weiss, a combination of Thompson's blades with Bigelow's very powerful handle. What I wish to draw attention to is the screw. I have here for comparison one of the lithotrites in use in the Western Infirmary, kindly lent me by Dr. Mackintosh, and also a lithotrite of my own, like the larger one made by Weiss, but entirely on Thompson's model—*i.e.*, with his handle as well as blades. If you compare these two, you will find that the instrument recently made has a screw with much more oblique grooves than the older instrument from the Infirmary, the result being that it has a considerably more rapid action. These oblique screws have been in use in small-sized lithotrites for some time. It is only quite recently, however, that they have been so far perfected as to permit of their introduction into such powerful instruments as that I have here to-night without grave risk of slipping or warping during use, the purchase obtainable from Bigelow's handle being much greater than that from Thompson's. Of course the advantage of rapid action in these large instruments is obvious. Hard stones of half an ounce in weight or upwards formerly took so long to crush that surgeons, unless their experience approached that of such passed masters in the art as Sir Henry Thompson, as a rule preferred to cut. Now, such stones can be fairly easily tackled. Here is the *débris* from a uric acid and phosphate stone, weighing, when dry, 357 grains; and, although this was a very hard stone, and my experience in crushing is as yet comparatively limited, I should have little hesitation in tackling still larger and harder stones provided I was armed with such a lithotrite as this. One point I may mention in this connection: being anxious to put this lithotrite to as stringent a test as possible, I crushed this stone under cocaine, and without chloroform, and came very near failure. In future I shall not attempt anything so large and hard without chloroform, no matter how good an instrument I may have.

Syringe.—A deep urethral syringe is an absolute necessity in urinary work. It is used for the application of cocaine previous to the use of instruments, for the application of injections in gleet or of topical remedies to the prostatic urethra in prostatitis or epididymitis, for the application of oil to the face of a stricture when fine bougies are to be employed, these not having sufficient extent of surface to carry in enough oil for lubrication, and for other purposes.

Formerly I always used Guyon's deep urethral syringe which I showed the Society last year, and with which many were doubtless familiar previously. This I still employ for

private patients who can afford to buy one for themselves. This syringe is soft and pliable, glides in and out of the urethra easily without causing any pain, is practically incapable of doing damage to the urethra, and yet has a surface so finely finished and glazed as to resemble that of metal, being, therefore, easily rendered aseptic by washing and soaking in carbolic lotion. In hospital work, however, where the syringe is very frequently in use, such a syringe as Guyon's comes to be expensive, as the catheter tubes have a comparatively short life. For such work a metal syringe is much more economical. I have tried several varieties, but the one I find the most serviceable is one made as closely in imitation of Guyon's as possible. The one I have here has been lately made for me by Messrs. Hilliard & Son. It has two catheter pieces, one straight and six inches long, the other curved, for the deep urethra, and of a length of eight inches. This particular syringe is made of solid-drawn silver, in order to permit of nitrate of silver solution being used, but any other suitable metal will, of course, do equally well.

Bougies.—I believe that a good deal of the teaching still current in regard to stricture is to the effect that, given a case of stricture, if the surgeon dilates it up to No. 12 (English scale), and keeps it at that, he has done all that is necessary or desirable for his patient. Indeed, instrument makers as a rule make bougies and catheters in sets ranging from Nos. 1 to 12 only, and higher numbers have to be specially made if required. Such practice and teaching is doubtless responsible for much of what is said and written regarding so-called "resilient strictures." For No. 12 is about equal to the calibre of a normal urethra very moderately dilated, as in micturition. At this calibre the fibrous tissue forming the stricture is originally laid down in the urethral walls, and from that it proceeds to contract till it has reduced the urethral lumen to a very narrow tube. Now, the passage of a No. 12 bougie merely stretches the fibrous tissue to its original dimensions, leaving it to contract afresh. Were a surgeon to treat club-foot by simply correcting, and not over-correcting, the deformity before applying the fixed apparatus, or were he to attempt the removal of any deformity due to scar or fibrous contraction by merely stretching the adhesions till the deformity disappeared, and not forcing and keeping up the traction till he produced a temporary deformity in the opposite direction, no one needs to be told what sort of ultimate results he would obtain. In the treatment of stricture the same holds good. If we are to attempt the cure

of stricture we must dilate up to No. 16, 17, 18, 19 or 20 (English scale), as the case may require. Practising on these lines, I have a growing conviction that a fair number of strictures can be absolutely and permanently cured, while the larger number of strictures can be brought to a condition in which an instrument once in six months is sufficient, and a settled conviction that "resilient stricture" must be a thing of the utmost rarity.

For some time I worked with two sets of bougies, one with parallel sides, the other with conical ends—*i.e.*, Lister's pattern, both running up to No. 20 (English). There is one decided disadvantage in such instruments, however, which is that the meatus, normally the narrowest point of the urethra, grasps the larger numbers firmly, so that, with the point in the grasp of the stricture, and the stem in the grasp of the meatus, it is impossible to tell how much of the resistance is meatal, and how much is due to the stricture. This leaves the surgeon at a loss to decide how much pressure he may safely employ, and whether the instrument is too large to pass without bruising or laceration of the mucous membrane. In order to avoid this difficulty, therefore, I have lately had a set of bougies made by Messrs. Hilliard, and in designing them, I have attempted to obviate at the same time several minor disadvantages of the more usual types. They are largely modifications of Lister's pattern, from which they differ, as you will observe, in several respects:—

(1) The head (point) is smaller and more pointed, to facilitate introduction into a narrow stricture. The advantage of this difference is best seen in comparing the head of the largest bougie of the set with the largest of this extended set of Lister's, a No. 17 to 20, in which the head is a bulky obtuse knob, little likely to enter a stricture without a good deal of force applied and bruising of the face of the stricture.

(2) The increase in calibre from the head to the part of maximum diameter is considerably greater. Lister's rise—three sizes from the head to the thickest part—*e. g.*, No. 8-11, or No. 9-12. These have a much sharper and more extensive rise, as will be seen from the scale (see below). The object of this is to avoid repeated introduction and withdrawal of instruments in dilating a stricture. With these bougies, once the point has been got through, a pretty full dilatation can be secured by simply pushing the instrument home. The advantage of this is too obvious to need comment, and will become at once evident to anyone who has to deal with a tight tortuous stricture, with a congested, readily bleeding

face, in the highly sensitive urethra of a patient given to "shivering fits" after instrumentation. I may say, however, that, personally, I should not think of using the three smallest bougies in the set for any tight stricture while I had a reliable soft instrument at hand. They have been added to make the set complete, in case at any time I should be unsupplied with other instruments.

(3) Lister's bougies are pyramidal, being thickest at the hilt (handle), and therefore being more tightly grasped at the meatus than at the stricture, giving rise to the difficulty I have mentioned. These (see diagram) are "bellied." From



the head the calibre increases along the neck, reaching a maximum on the hilt side of the shoulder. The part of maximum thickness has a length of $1\frac{1}{4}$ inches, after which the diameter rapidly lessens towards the hilt. The advantage is that, in using one of the set, say the largest, No 9-20-12, while the thick part, the belly, is being passed through the stricture, the portion at the hilt, which, in this bougie, has a calibre of No. 12, is practically "wobbling" free in the meatus already dilated to No. 20 by the passage of the "belly," and the surgeon knows exactly what he is doing with the stricture.

The set consists of eight, of which this is the scale:—

2— 6—5	6—14— 9
3— 8—6	7—16—10
4—10—7	8—18—11
5—12—8	9—20—12

(4) The handle is in the form of a ring to permit of the bougie being easily tied in after being passed.

Allow me also to draw attention to the case I have had made for these bougies. It is of plain oak, with metal racks, and can be washed or soaked in any antiseptic lotion.

Soft Instruments.—Last year, when I had the privilege of giving a paper and a demonstration before the Society bearing on urethral diseases, I strongly urged the use, in tight strictures, of soft instruments in place of hard metal ones, and

drew attention to the somewhat peculiar position occupied by Scotch surgeons in general in sticking to metal instruments for such cases. Since then I have discussed the question with quite a number of medical friends in Glasgow, and have heard many arguments in favour of metal, and against soft, instruments. I have no intention of repeating here all the arguments to be advanced in favour of soft instruments. I may say, however, that I am now, if anything, more strongly in favour of soft instruments than ever, and feel confident that ere long Scotland will, in this respect, follow England, the Continent, and America, more especially as, however strongly Scotch surgeons may argue against soft instruments in general, and for tight strictures in particular, they have virtually conceded the point in the use of soft rubber catheters in prostatic, spinal, and other retention cases, as being less painful and less likely to do harm, either in the patient's hands or those of his attendant, than metal ones. I am equally undesirous of attempting to reproduce here the arguments I have heard used against soft instruments and in favour of metal ones. They seem, to me at least, to savour strongly of the usual natural tendency to cling to the traditions of early training, and to resent innovations. Under this head I should group nearly all of them. There is one argument, however, which appears, *prima facie*, to have some weight against soft instruments. It is asserted that soft instruments are less easily cleaned, and are more liable to be dirty and septic, than metal ones. Let it, for the sake of argument, be assumed for the moment that this statement is absolutely true in fact; it will not be difficult to prove that the argument based upon it, even if its truth be assumed, is specious. It is well enough known that the larger number of strictures are not mere annular constructions of the urethra, but tortuous or oblique channels of varying length; and, further, that almost all strictures, whether merely annular or more lengthy, have orifices eccentrically placed in the urethra. Now, it does not need much reflection to suggest to any one that, through a tortuous, narrow, congested channel, the position of whose angles and the direction of whose curves are unknown to the surgeon, it must be a matter of the greatest difficulty to pass a fine steel instrument, like No. 1, or 2, or 3 of any pattern in use, with a fixed curve and rigid structure, without abrading the surface of a curve or ploughing up an angle. I say nothing here of the difficulty of the eccentric opening and the evidence to be got by the urethroscope of the damage done there by rigid steel bougies of fine size, nor of the evidence to

be derived, in the *post-mortem* room or the museum, of the damage to the channel of the stricture. These matters I dealt with last year. At present I merely wish to put the point to members of the Society as a matter of common-sense reasoning. Conversely, it is surely reasonable to suppose that an instrument which is pliant and soft will, if used, as it ought to be, with a gentle rotatory and wriggling movement, be much more likely to adapt itself to the curves of the channel, and pass without damage. Of course, every one is aware that all the soft instruments now in use have a conical shape, so that, once the soft "guide" point has passed, full dilatation is obtained by simply pushing the instrument home, thus avoiding withdrawal of the fine instrument for the insertion of a larger. What I am putting to you as a matter of supposition and suggestion, however, has been already abundantly proved. Not only will you find it so in the surgical literature of the Continent, of America, and of England, but it will not be a difficult matter for any one, by providing himself with the necessary apparatus, to demonstrate it for himself.

Look for a moment at the condition of matters in another part of the body. We all know that the mouth, for example, is constantly having septic matters introduced, and yet no harm results. But make a wound in the mouth, and there are few conditions in the body more liable to result in septic mischief. To return to the argument regarding soft instruments in tight strictures. Given a case of tight, tortuous or oblique stricture with chronic partial retention, cystitis, and purulent urine. Take to treat it a soft instrument, filthy and septic. In the majority of instances you can gently wriggle this through without abrading any part of the urethral mucous membrane, thus dilating the stricture and giving free exit with the urine, not only to anything septic you have introduced, but to the previously purulent urine. Take, on the other hand, a small No. 1, 2, or 3 steel bougie, carefully sterilized, and in passing that through, make but the slightest abrasion, and you establish a condition of affairs in which it is not your fault if septic mischief does not ensue. Further, take a case similar to the foregoing in every respect, except in the presence of purulent urine. Treat it by a soft pliable instrument which is septic, and, as a general rule, no harm results, the urine escaping through the dilated channel, carrying with it over the intact mucous membrane whatever septic material you may have introduced. Treat it, on the other hand, by a sterilized small steel bougie. If an abrasion is made, hæmorrhage results, and, as a general rule, urethral

hæmorrhage (as distinguished from vesical or renal) coagulates in the urethra, and shreds of clot are apt to remain for a time adherent to the various orifices in the walls. These shreds form an excellent medium, through which microbes may propagate themselves from the meatus to the seat of the abrasion or wound.

What I have for the moment admitted for the sake of argument, however, I do not in any sense admit as an actual fact—namely, that soft instruments tend more to be septic than metal ones. This I admit at once, that metal instruments may be boiled, while soft may not. Neither may sponges nor a surgeon's hands. Yet there are methods of simply rendering all three antiseptic. Soft instruments may be as efficiently washed and as efficiently soaked in carbolic lotion as metal ones, and every care ought to be taken to have them aseptic, just as every care should be taken with metal ones. I am not certain that, in actual practice, soft instruments do not tend to a more efficient antiseptic *régime* than do metal ones. For these recent soft instruments have "guide" extremities so fine that they carry very little oil into the urethra. It is customary, therefore, before using one, to cover the face of the stricture with oil or glycerine by means of a deep urethral syringe. The oil or glycerine used always contains a full quantity of carbolic acid in solution.

I have here several recently introduced soft instruments:—

Solid-ended gum-elastic catheters. These are patented by Maw, and are, as you will see, solid beyond the eye to prevent lodgment of any septic or putrescible matter. Of course, this idea has been for years carried out in the manufacture of metal catheters.

Lassere's manufacture of Harrison's "whip" bougies of gum-elastic.

Tieman & Co's manufacture of Bang's whalebone conical bougies.

Both of these instruments have, I think it will be admitted, a surface so finely finished as to be comparable to that of polished steel, leaving little chance of any foreign material effecting a lodgment.

Permit me also to draw attention to the glass cases made for these soft instruments at my suggestion by Mr. Andrew Brown. They are easily carried in a handbag, and have the advantage of being easily cleaned and of at once showing any dirt.

Dr. Renton expressed a very strong liking for metal instruments, especially for those recommended by Lister; with

metal instruments one seemed to know better where one was, and they had also the advantage of finding their own way along a stricture by their weight. He recognised the benefit of the modification shown for escaping catching at the meatus, though he had never had any difficulty in that respect from Lister's form.

Dr. Hector C. Cameron said that after all he had heard in praise of soft instruments, he was still of the opinion he had expressed at the time of *Dr. Nicoll's* previous demonstration (see *Glasgow Medical Journal*, 1892, vol. ii, p. 226). He believed that neither form should be exclusively used, but his preference was for metal instruments; he had seen as many false passages made with the one form as with the other. With regard to the meatus, he had been in the habit of getting over any difficulty there by incising, as had been suggested by *Otis*.

Dr. Nicoll, in reply, insisted that he had advocated soft instruments only for tight strictures; there was no doubt that they were not so suitable for dilating strictures beyond No. 4 or 5 (English).

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

By DR. R. S. STEWART.

The Sedative Action of Duboisine in the Insane. By *Marandon de Montyel*. (*Archives de Neurologie*, September, 1893).—The following conclusions are based upon an extensive experience of this drug, given in continued doses of from 2 to 4 milligrammes:—

1. Duboisine reveals itself as a marvellous sedative, capable of combating, always and in all cases, maniacal and melancholic agitation, often substituting an absolute tranquillity for the most violent excitement or anxiety; its action presents itself in two degrees, the one incomplete, consisting of a simple attenuation of the exaltation, the other complete, and characterised by the total disappearance of the latter for a time more or less long.

2. The calm induced does not attain its maximum all at once; sometimes this does not occur till the second or third day.

3. Once produced, the calm is maintained very regularly so long as habituation does not manifest itself.

4. The more complete sedative action most often persists one or several days after stoppage of the drug, and often it happens that the calm is prolonged over a fairly long period.

5. In the intermittent and remittent forms of insanity, it is capable of reducing the duration of the attacks and of spacing them out.

6. The sedative action in all its degrees has been in general, particularly in the first days of treatment, in inverse proportion to the length of time that has elapsed since the administration of the remedy; hence the advantage of giving the drug in two doses daily.

7. The complete action occurs much more frequently in chronic than in acute mania, and, on the contrary, in acute than in chronic melancholia, and in a general way, in mania than in melancholia.

8. In general paralysis the complete action is less frequent than in chronic mania and acute melancholia, but more frequent than in acute mania and chronic melancholia, but, on the whole, general paralysis shows itself more sensible to the influence of the drug than the insanities.

9. Habituation occurs very promptly in the insane, is established very suddenly, and is not overcome by increasing the dose.

10. Tolerance is more frequent and more rapid in general paralysis, is more frequent in melancholia than in mania, and does not appear in the chronic forms of insanity.

11. The incomplete action is less frequent in general paralysis than in other forms of insanity.

12. In a general way it may be said that the drug is more active in general paralysis than in the insanities, in mania than in melancholia, in chronic than in acute mania, and in acute than in chronic melancholia.

13. Owing to its action on the stomach, it is well to administer the drug at times the most removed from the two principal meals.

14. It has, unfortunately, a very damaging effect upon the general nutrition, particularly when long continued.

Insanity in New South Wales. By Ross (*American Journal of Insanity*, October, 1893).—Among other interesting facts brought out in this paper, it is noted that the proportion of the insane to the population in this colony is smaller than in either England or Scotland, and remarkably so compared with Ireland, and that while the proportion is increasing in the United Kingdom, it has rather diminished in New South Wales during the past ten years. The proportion of insanity is higher in males than females, which is explained by the fact of the greater preponderance of the male population, and on the ground that males in the early colonial struggles are more subjected to strain and hardship, but the relative proportion of insane women is gradually increasing, and will, it is estimated, have assimilated to that of England in about thirty years. The proportion of Irish insane to population of Irish birth is four times, and of English and Scotch more than double what it is at home, but in the Chinese the proportion is the same as in England—viz., 6.38 per 1,000. The rate for aborigines is about 1 per 1,000, and is nearly three times less than what it was in 1881.

Hopeful Recoveries from Insanity. By Wise (*American Journal of Insanity*, October, 1893).—The argument of this writer is that a large number of those who relapse after a first recovery from insanity do so from a return to those exciting causes or the environment which were responsible for the primary attack, and that there is a possibility of reducing this number to inconsiderable proportions. He holds that the convalescent period is too much abridged in the case of those recovering from the hopeful forms of insanity, and that, though in many instances a return to home influences is desirable for the completion of convalescence, there are many instances in which this does not hold good, and for these he suggests the desirability of after-care for some considerable period, preferably in an institution which would be intermediate between the asylum and home surroundings.

The Classification of Inebriates. By Dana (*American Journal of Insanity*, October, 1893).—Inebriety includes a number of different clinical conditions and moral states. Some of these are truly diseases; some represent simply the results of a deficient moral sense or of dominant and brutalising

instincts. Four forms are described by this observer. The first is denominated *periodical inebriety*, and is characterised by uncontrollable craving for drink, quantity and not quality, the patient being relatively abstinent between the seizures. The trouble is essentially a mental one, a fulminating psychosis, allied to epilepsy, and to be treated on the same lines. In the second, *pseudo-inebriety*, the patient is neurasthenic and depressed, and takes liquor to drown his cares, and for these tonic and roborant treatment is called for. The third class comprises the *common drunkards*, who are always more or less under the influence of drink, and have occasional attacks of delirium tremens; these are morally weak, feeble-willed, or naturally brutal and depraved, and moral treatment is of most avail. Lastly, there is *mania a potu*, a disease in which a small dose of alcohol, not sufficient to intoxicate, produces almost immediately a condition of acute mania.

Alcoholic Neuritis.—Reunert gives his experience of 25 cases of this kind (with 5 *post-mortems*), constituting about 3 per cent of the alcoholic patients who have been under his treatment. He divides the cases into four groups: (1) typical polyneuritis, 13; (2) localised muscular atrophy and weakness, 4; (3) slighter forms without definite palsy, and without atrophy, but with disorders of sensibility, a sense of pressure affecting the nerves and muscles, or anomalies of the reflexes, 6; (4) marked involvement of the ocular muscles, 2.

At the beginning, the patients complained of rheumatoid pains, and a sense of weight and stiffness in the lower limbs (in two cases also in the upper limbs), increasing weakness, pains in the calves, *muscæ volitantes*, or even diplopia. These pains could only be considered pathognomonic when associated with a sense of pressure in the nerve-trunks and muscles, but became of the highest importance when they co-existed with anomalies of the reflexes, and in particular, of the knee-reflex. Hyperalgesia is frequent in connection with chronic alcoholism, and is therefore not characteristic of neuritis. In a third of all the cases, there was delirium at some period of the disease, and psychical disorders (mental enfeeblement, insomnia, hallucinations, &c.) were frequently observed. In two cases the mental symptoms continued until death. A rapid improvement in this class of symptoms pointed strongly to alcoholic origin of the disease.

Tuberculosis was one of the most frequent complications; alcohol and tuberculosis seemed to be the common cause of the nerve degeneration. The prognosis of alcoholic neuritis, without being in itself very unfavourable, became peculiarly grave if tuberculosis were an element in the case.

Ataxy was one of the most important of the nervous symptoms. The electrical reaction of the muscles was very various in different cases. As regards sensory disturbances, neuralgia was in the slightest cases practically the only one. In patients suffering from the combined effects of alcohol and tuberculosis, the pains were commonly very severe. Cutaneous hyperalgesia was very rare. The tendon-reflexes were, as a rule, weakened or absent, to return slowly during convalescence. (Their exaggeration has been noted by Strümpell and Möbius.) The cranial nerves were perhaps involved in a number of the cases, as the patients complained of ocular troubles. Occasionally there was a tendency to perspiration and oedema. In two cases there was temporary cyanosis. Disorders of the digestive and urinary systems were either awaiting or very fugitive. With regard to the morbid anatomy, the author's experiences coincide with those of Strümpell, and point to the simultaneous origin of the lesions in the different parts of the periphery.—(*La France Médicale*, 25th August, 1893).—T. K. M.

Treatment of Myxœdema and Cretinism with the Thyroid Gland. By Beadles (*Journal of Mental Science*, July and October, 1893).—In this paper 100 published cases of myxœdema and 11 of cretinism are reviewed. The treatment by thyroid gland is found to give equally favourable results in both sexes and at all ages. The length of time which the disease

has existed makes little or no difference in the treatment. In some cases the improvement occurs with extraordinary rapidity, and the changes brought about in one month or eight weeks are always well marked; but the length of time during which it may be necessary to continue the treatment is a point as yet unknown. Probably it may be necessary to continually give a small dose at more or less prolonged intervals in order to maintain the improved condition. As regards dosage there has been no uniformity, so much depends on the age of the individual, and stage of the malady, and personal idiosyncrasy. The occurrence of grave and unpleasant symptoms is noted, attributable mainly to excessive dosage and consequent toxic action, and varying from general weakness, faintness, nausea, vomiting, giddiness, headache, and aching pains in the neck and shoulders, to loss of consciousness, tonic spasms, collapse, urgent dyspnoea, and cardiac failure, while in four cases death resulted.

Murray's Royal Asylum, Perth: Sixty-Sixth Annual Report.—The fact that, of the admissions during the year reported on, not one half could be considered curable, is used by Dr. Urquhart as an argument in favour of the inculcation of reasonable methods of training, and the adoption of less artificial manners of life. The recovery-rate is slightly under, and the death-rate considerably over, the general average. The Commissioners continue to speak in favourable terms of the condition and management of the institution.

Derby Borough Asylum: Fourth Annual Report.—Among the admissions the melancholic type was predominant, which is attributed to the resulting debility of recent influenza epidemics. Dr. Macphail is to be congratulated on his recovery-rate of 51·1 per cent of the admissions. The death-rate continues high, compared with the average for asylums, but is the lowest recorded since the opening of the Asylum.

Holloway Sanatorium: Seventh Annual Report.—A large sum of money was expended during the year in the structural improvement and development of this hospital. The Commissioners suggest that in such outlays the extension of accommodation in the way of charity should be the paramount consideration, as carrying out the intention of the founder. The hospital is nearly full, its inmates numbering at the close of the year 366, and during the year the admissions and discharges have been very numerous, the total number of cases under treatment being 615. The recovery-rate of 54·7 is highly creditable in itself, but is all the more so in view of the fact that 23 per cent of the admissions were suffering from general paralysis. The death-rate was 9·7. Influenza attacked one fourth of the inmates, and influenced the mortality rate, but had no effect on the mental condition of those affected.

MEDICINE.

By T. K. MONRO, M.A., M.B.

A New Sign of Pericarditis.—Attention has been drawn to this by Peyré, and it is thus described by Pins:—

If a patient suffering from pericarditis with effusion be percussed while in the sitting posture, an area of absolute or relative dullness is found extending from the angle of the scapula to the axillary line. On auscultation of the same region, there is heard well marked bronchial breathing, with the *timbre* of the vowel "e;" also increased fremitus, and, in the centre of the dull area, some bronchophony. Nevertheless there are neither râles nor friction sounds. If now the patient bows down, either forwards or towards the left side, a clear, full note will be obtained after the lapse of a few minutes, where formerly

there was absolute dulness, and at the same time bronchial breathing will have almost entirely disappeared. Perret and Devie have observed analogous pleuro-pulmonic signs where, as a matter of fact, the pericardium alone was involved. They have met with dulness, or a decided approach to dulness, at the base of the left lung, along with the murmur of broncho-pneumonia, but without râles. These various signs are not due to pleuritic effusion, but to compression of the lung and left bronchus by the distended sac of the pericardium. To cause them to disappear, it is sufficient to put the patient in such an attitude that the lung will no longer be compressed. Compression is especially likely to occur in the child, because here the thorax is small in proportion to the volume of the heart. The physician, therefore, ought, particularly in the case of a child, to be on the look-out for a lesion of the pericardium whenever he observes the signs of a pleurisy of the left side.—(*Progrès Médical*, 17th June, 1893.)

Spectroscopic Analysis of the Blood by Direct Examination of the Integuments.—Hénocque, of Paris, has devised a new hæmatospectroscope, which makes it practicable to estimate the amount of hæmoglobin in the blood by observation through the skin and mucous membranes, without the withdrawal of a single drop of blood. The instrument, which is named the chromatic analyser, consists of a simple, direct-vision spectroscope, furnished, in front of the slit, with a movable disc, which carries graduated coloured glasses, so as to attenuate or extinguish the bands of oxyhæmoglobin, which are normally visible on the surface of the skin, nails, lips, and palpebral conjunctiva. According to the thickness of the glass, which causes the disappearance of the bands, one may determine the amount of hæmoglobin; this is indicated by the figure placed below the last glass, which still permits of the first band being seen.

The conveniences of this method of examination are at once apparent. The observations can be frequently repeated. They may be carried on in children, in premature infants in the incubator, in timid persons, in the subjects of hæmophilia, and in those who have been wounded, or have undergone operations. Hyperæmia may be estimated relatively; the varying vascularity of different parts, and the condition of the blood in cyanosis, asphyxia, or at the moment of death.—(*La France Médicale*, 8th September, 1893.)

Multiple Chancres with Fever Treated by Warm Baths. (Legrain).—An anæmic young man, who had a soft sore on the scrotum and a suppurating bubo in the groin, suffered much from itching in the legs, and scratched himself freely; the consequence was the sudden eruption of some 30 chancres on the lower limbs. This was associated with well marked fever, which continued for a week, although the ulcers were daily cleansed with corrosive sublimate solution, and dressed with iodoform. While these sores were in process of healing, a second and more abundant eruption took place over the limbs, buttocks and loins, again accompanied by high fever, and by great prostration. Warm baths were employed daily, the temperature being gradually raised, by the addition of hot-water, from 30° to 39° C. The temperature soon went down, and the patient recovered, the ulcers healing in three weeks.

Experimental inoculation of pus from the sores was successfully carried out three times on the patient himself. Culture experiments made from the blood yielded negative results. The fever was looked upon as a simple absorption fever.

On the Care of Infants and Young Children, according to the Bible and Talmud.—The following is an indication of the subject-matter of Dr. Finlayson's article in the *Medical Magazine*, October, 1893:—

The Talmud gives directions to the pregnant and the nursing woman as to the management of her health, particularly in the matter of diet, and it indicates the evils that may be expected to result from the violation of these rules.

The foetus was believed to originate from three sources—the father, the mother, and the Lord. To the first it owed the white portions, whence were derived the bones, nerves, white of the eyes, &c. The second contributed the red portions, from which were developed the skin, flesh, coloured part of the eyes, &c. God gave the spirit, the intellectual faculties, and the power of movement.

The Talmud teaches that an angel takes charge of the embryo from its very beginning, and educates the foetus “in all sciences, but especially in the study of the Mosaic and Rabbinical laws. At the moment when parturition begins, however, the angel gives it a slap on the mouth, and all that it has learned is forgotten.”

An explanation is given of the origin of sex. If the male seed gets first into the womb at coitus, a female child is the result, and *vice versa*. Indications, too, are furnished for the determination of sex before birth. Thus, “a woman who is pregnant with a male child ought to have a better complexion, and the quickening should occur earlier, and parturition also ought to be easier and less painful. The last mentioned circumstance is especially insisted upon by the Talmudists.”

Hermaphrodites were excluded from civil and religious rights, but operations were performed to remedy some malformations, such as imperforate anus and hypospadias. Allusion is here made to the tradition that Moses and Job had congenital absence of the prepuce.

The desire for male issue was strong among the Jews, and Rabbi Elazer knew how to take advantage of it. He says, in answer to the question, “What is a man to do in order to beget male children?” “Let him disperse his money among the poor in alms.”

The expression “stool,” stools,” or “birthstool,” which occurs in Pharaoh’s order to the Hebrew midwives, has given rise to much discussion, and the question cannot yet be regarded as settled. It is possible that “upon the stools” of the authorised version ought to be rendered “on the wheels”—i.e., before the potter’s vessel comes off the wheels, the idea being (and this view is supported by the midwives’ reply to Pharaoh) that Pharaoh intended that the babes should appear to have been still-born and not to have been killed.

The fact of the prolonged period of separation of a woman after a female birth as compared with a male birth (as enjoined in Leviticus), is familiar to all, and must appear strange to modern obstetricians. There is no doubt, however, that, in the times of the Talmud, the idea was generally prevalent that a labour which resulted in the birth of a female child was more severe than that which gave birth to a male. To account for this supposed fact, a writer in the Talmud says that the female foetus turns round before birth, so as to present with the face anteriorly, while the male presents with the face posteriorly. Curiously enough, a pseudo-Hippocratic writer describes the period of lochial purification as being from twenty-five to forty-two days for a girl, and twenty to thirty for a boy. His explanation, however, differs from that of the Talmud.

The subject of circumcision naturally receives much attention from the Hebrew writers, and in the Talmud also expression is given to the popular notion that “the child born at the term of nine months, or of seven months, is regarded as viable, but it is considered not viable if born at eight months.”

The Talmud further gives rules for deciding the question when a child has actually been born. It indicates the circumstances under which an operation compromising the life of the child is justifiable, and ordains the breathing in of air as the means to be used to resuscitate the apparently still-born.

The after-birth was sometimes treated with oil, and wrapped in wool or cotton, as a sympathetic measure calculated to warm and revive the new born infant.

The Hebrew writers inculcate the duty that devolves upon mothers of nursing their own children, but abundant reference is made to other nurses, and it is probable that wet nurses were sometimes hired.

“In three different cases, females ought to make coition unfruitful by using

a tampon in the vagina—viz., a delicate girl still immature, a pregnant woman, and a woman who is suckling. The first, so that, if she chances to conceive, she may not have to atone for the parturition by her life; the next, so that a second fœtus may not be formed, and press to death the one already in the womb; and the last, so that her babe may not be caused to pine away by the occurrence of pregnancy."

"Nursing women do not menstruate because the blood is transformed into milk."

The weaning of children is often referred to. A very instructive allusion occurs in 2 Macc. vii, 27 :—"O my son, have pity on me that bare thee nine months in my womb, and gave thee suck three years, and nourished thee, and brought thee up unto this age, and endured the troubles of education."

The prophet Isaiah speaks thus of the growing child :—"Butter and honey shall he eat when he knoweth to refuse the evil and choose the good."

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